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SIZE OF SOYBEAN CROP DOUBTED

WASHINGTON — Trade information reaching here now casts some serious doubts as to the size of the soybean crop. Trade reports from agents at Decatur, Ill., say that harvesting reports from the lower fringe of the bean belt and into the delta area now indicate that bean yields are falling well below anticipated estimates of the government and private trade sources. These sources are now discounting optimistic reports that the bean crop will eventually run ahead of previous U.S. Department of Agriculture estimates and are sensing a final outturn closer to the original USDA report than the prospects that private crop reporters and USDA have indicated recently.

PL 480 Authorizations To Export Edible Fats Will Start Nov. 1

WASHINGTON — The Foreign Agricultural Service of the U.S. Department of Agriculture will open up its procurement authorizations for edible fats for export under provisions of Public Law 480 not later than Nov. 1. Observers report that these authorizations are expected to be substantial at the outset.

Recently it has been learned that foreign nations have increased their requests for edible oils—a move which some government quarters suspect is a device to gain FAS favor for approval of other commodity requests.

FAS officials say that they have reliable assurance that in the case of Spain, for example, that this nation after a closer examination of its olive oil production outlook may now buy between 100-200 million pounds more of edible oils than it had previously anticipated as necessary import requirements from the U.S. this crop year.

However, as a cautionary note FAS officials say that all their decisions now are predicated on the current billion dollar availability of PL 480 funds. If FAS is held to that level, it would mean that this government can only supply about five-sixths of last year's exports of edible fats through PL 480 financing.

Now that the demand is taking final and real form, FAS officials hope that when Congress returns it will eventually add more fiscal fuel to the PL 480 furnace, so that FAS will be able to meet all real demands for edible fats from Western Europe this crop year.

Additionally, FAS officials believe that under barter provisions of the amended PL 480 act which includes behind the Iron Curtain nations of Eastern Europe there is a major possibility that some shrewd trader may ultimately come up with a big barter deal either direct or through triangular arrangements, which would move such a substantial quantity of oil that it would remove any doubts about the marketing and crushing of the expected big soybean crop this year.

—BREAD IS THE STAFF OF LIFE—

CASH ADVANCES IN CANADA

WINNIPEG—Reports from Ottawa suggest that the Canadian government has completed plans to provide prairie wheat farmers with cash advances on farm-stored wheat to be delivered when space becomes available rather than interest-free loans as had been rumored.

Drastic Revisions in Farm Policies Indicated by New Benson Conception

By JOHN CIPPERLY
Northwestern Miller Washington Correspondent

Would End Acreage Control System and Cut Corn Support

WASHINGTON — Ezra Taft Benson has enlisted the support of the National Agricultural Advisory Committee of the U.S. Department of Agriculture in his proposals to end the concept of the basic commodity crops with their acreage controls and current flexible support system.

The Secretary of Agriculture's proposals were given unanimous support by the 16 members (18-man committee) present for a meeting, and Mr. Benson is now prepared to take his fight to Congress.

The proposals would mean significant changes from the present program and could have broad effects on agriculture and the trade.

Would Reduce Support

Mr. Benson's first step will be to ask Congress to end acreage allotments for corn and to reduce the level of support for the big feed crop to below 75% of parity, the legal minimum available under the flexible support schedule of the present farm law.

It is understood from informed sources that Mr. Benson will ask Congress for full discretionary authority on price support for all farm commodities—but this grant is not likely to get congressional approval—and that he would compromise to drop the corn support to not more than 70% of parity as soon as Congress could be persuaded to agree.

At the same time, Mr. Benson would halt all acreage allotments for corn.

When and if such a program were given congressional approval, the Secretary would make proportionate adjustments for other feed grain support levels to bring them down into line with a corn support of 70% of parity or lower.

These decisions were reached here between the Secretary and the National Agricultural Advisory Committee of USDA. Other decisions included approval of a move to ask Congress to kill the present flexible support system for all basic commodities

(Turn to POLICY REVISION, page 34)

Walter C. Berger Lights Policy Reasoning

WASHINGTON — Speaking at the Iowa State Corn Picking Contest at Washington, Iowa, Oct. 8, Walter C. Berger, administrator of the Commodity Stabilization Service and executive vice president of the Commodity Credit Corp.—impressed upon his listeners the dual position he holds—related in muted tones the probable policy course of the U.S. Department of Agriculture in proposals to be made to the next session of Congress.

Mr. Berger called the attention of the corn farmers to the serious problem of the diversion of acres from the allotment crops of wheat and cotton to other crops which add to the total surplus problem. He cited situations where cotton acres have been shifted to grain sorghums; wheat acres to barley and sorghums; corn acres to soybeans and other crops. He commented: "To a certain extent, we have simply had a reshuffling of the surpluses."

Yield Increases Cited

Also highlighted by Mr. Berger were what he described as the astounding increases in yields during recent years—one of the major reasons for the failure of controls to get effective production adjustment. He declared: "We will never quarrel with efficiency, of course. On the contrary, we are very proud of the great productive capacity of the American farmer. It is one of our great national assets. In spite of current troubles, we should be grateful that our problems have to do with over-abundance and not with shortages. Lead-

(Turn to WALTER BERGER, page 34)

—BREAD IS THE STAFF OF LIFE—

Bu.-vs.-Cwt.—USDA Makes It Official: No Early Change, But Threat Stays On

WASHINGTON—The U.S. Department of Agriculture has announced officially that it will not shift from the bushel to the hundredweight in handling next year's Commodity Credit Corp. grain operations.

This means any change will not come for at least another year.

Meanwhile, USDA said, study and discussion of the desirability of making the change at a later date will be continued.

The possible use of the hundredweight measure at the beginning of the 1958 marketing year as the basis for CCC price support loans, warehouse handling and storage charges, sales and related activities had been under consideration. The proposal was discussed with trade and farm organization representatives at a special meeting Sept. 25.

The issue also was considered at a national conference of state commissioners and directors of agriculture in New Hampshire.

News of the USDA decision came out at that conference, where Walter C. Berger, director of the Commodity Stabilization Service, appeared as an official spokesman for USDA. The state commissioners were told that further study was necessary in view of the heavy opposition from the grain handling trades.

The official USDA announcement said that after the discussion "it was declared that it would be advisable to make further determinations regarding both the advantages and difficulties in the proposed change before undertaking the shift. Among factors considered were the need to be certain that all concerned with grain handling, from producers to ultimate users, had full opportunity to understand just how they would be affected; the minimum time-lag required for both CCC and the trade to revise regulations and procedures; and the possible need for legislative revision of laws regarding grain handling in some states."

Urban Directors Propose Company Split Stock

BUFFALO — The 111-year-old George Urban Milling Co. plans to broaden its ownership through a stock split. Directors of the company have recommended splitting the present 9,000 shares on a 10-for-1 basis, bringing the total to 90,000 shares.

The directors have also recommended that an additional 60,000 shares of stock be authorized for use later "in case something comes up" in the way of future company acquisitions. The company recently acquired Maritime Milling Co., Buffalo.

Splitting the stock—which is subject to stockholders' approval—will immediately reduce the price of the stock from $350 to around $35 a share, the directors said. This will make for a better market, particularly in the purchase of 100-share round lots, they explained. To buy 100 shares now requires an investment of $35,000.

Although some of the stock will be owned elsewhere, control of the company will be held firmly in the hands of the present owners, the directors pointed out.

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CENTENNIAL REPORT—A consolidated net income of $91,667.87 for the fiscal year ended June 30, 1957, was reported by Moritz Milburn, president of Centennial Mills, Inc., in his annual statement to shareholders ..... Page 5

UTILIZATION CONFERENCE—A report of the wheat utilization conference (texts of the talks there by Atherton Bean, president, International Milling Co., and Fred Atkinson of the Atkinson Milling Co., Minneapolis, on pages 7 and 14, respectively) at Peoria, Ill., Oct. 1-2 ..... Page 10

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The·Northwestern·Miller

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Flour Industry and Grain Trade

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EDITORIALS

The Course of Farm Legislation

THE future course of farm legislation, when Congress reconvenes, is not clear. Little was done, though much was said, in the last session. It is safe to forecast that there will be a lot more talk and a welter of advice from outside sources, some of it uninformed, seeking to guide, persuade and urge the solons as they plot a muddied stream.

Target for attack, once again, will be Ezra Taft Benson, secretary of agriculture. It needs no sage, either, to predict that loans, subsidies and supports will loom large amid the legislative polemics. Criticism will be as destructive as it is constructive.

Take subsidies. Already misgivings are being expressed by men in the grain and flour trades who fear the eventual outcome of current programs. Subsidies, too, will be attacked by some of those who have gained most from their operations—the farmers. Herschel D. Newsom, master of the National Grange, says it is almost time for the U.S. to end its special deals on surplus disposal. Note that Mr. Newsom qualifies his advice by saying "almost time." Evidently, he is not anxious to have his farmers left hanging over an abyss of monetary emptiness. In this he may be showing wisdom for what should take the place of present programs if they be ended?

Mr. Newsom explains his point of view: "The present program of subsidized dumping of U.S. farm products abroad through half a dozen programs is nearing the end of its economic usefulness. The universal practice of subsidizing farm exports is likely to cause a battle between national treasuries. Uncle Sam could win such a battle hands down, but in the process of doing so would experience a grave loss of friends internationally as well as a loss of markets because of trade arrangements that can be and are being made among other exporting and importing nations."

Nations have two reasons for farm price support programs, Mr. Newsom says. One is for national security and welfare and the other is to attempt to provide farm income, for labor, managerial ability and investment, comparable to that of non-farmers. Yet, such programs have a definite impact on world trade in agricultural products.

The Grange policy is this—it seeks to restore a free market approach to world trade in place of state dumping. How this is to be done is not clear. Perhaps it will be equally unclear to members of Congress.

Even Henry R. Luce, editor-in-chief of Time and Life magazines, gets into the act. He told a recent gathering of newsmen in Ottawa that he is entirely opposed to the dumping of surplus wheat abroad by the U.S. The subsidization of domestic over-production and the resultant dislocation of international wheat markets through dumping is economic nonsense, Mr. Luce asserted. But he does not explain his solution.

Next on the list for congressional attack will be loans. Rep. Charles H. Brownson (R., Ind.) has appeared early in the lists.

Rep. Brownson proposes to set a limit on the amount of money which may be loaned to a farmer or farming corporation by the Commodity Credit Corp. Giving rise to some indignation is the report that the Campbell Farming Corp., founded by Gen. Thomas D. Campbell, reputed as the biggest individual grower of wheat in the world, received $312,998 from CCC in 1956. The city people, the representative says, are getting awful tired of this unconscionable burden on their economy. Predicting that farm legislation will be the big issue in the next session of Congress, he comments: "There could be a big revolt."

Rep. Brownson says: "A lot of money has been paid to only a few farmers. What we aim to do particularly is to take good care of the family-type farm, and not subsidize the big corporation farming operations." Mr. Brownson, by the way, describes himself as "a city man." Perhaps it is from the city men that attacks on farming policy will come.

Finally, will Congress once again be asked to look at the "two-price" system? The National Grange favors it for wheat. Farmers would get one rate in the domestic market and then accept a lower rate in the world market. The proposal got short shrift in the last session. It is entirely possible that it will be raised again.

Whatever happens, agriculture will be a major topic in Washington.

Buffalo Celebrates a Birthday

BUFFALO, queen city of the flour producing world, is celebrating the 125th anniversary of its incorporation as a city. Congratulations from its fellow-flour cities are in order, even from Minneapolis which Buffalo superseded as the leading flour producing center in 1930.

Kansas City tried to provide some tough competition for Buffalo in the 1930's even passing Minneapolis to take second place toward the end of the decade. Minneapolis regained that position in the years 1943 to 1946, inclusive, and again in 1953, but since then Kansas City has been its master, though still trailing Buffalo.

Lest the Buffalonians feel too proud of their supremacy, it may be as well to remind them that the Minneapolitans provide a home for the headquarters of the three largest milling companies in the U.S., if not in the world. (It is hard to say, unequivocally, "in the world" because the British are coy about revealing the size of their operations, though one firm claims to have more individual plants than the U.S. leader.) Kansas City, too, is the home of some substantial milling groups.

Today the accent is on cooperation rather than rivalry; nothing like the events of 1812 are likely to reoccur for in that year the Canadians, some perhaps from Toronto, itself destined to become an important flour headquarters, swooped down on Buffalo and burned the pioneer settlement to the ground. The Americans returned the compliment in 1813. Since then relations have been tranquil and cooperation is no more pronounced than on the technical level as represented by the operative millers and the cereal chemists through their respective associations.

Minneapolis and Kansas City have drawn freely on the Buffalo training ground for their key executives, an outstanding example being Gerald S. Kennedy, president of the Millers National Federation. And Buffalo's Lyle Mertz is currently reigning as president of the Association of Operative Millers.

——BREAD IS THE STAFF OF LIFE——

EFFICIENCY UNDER-RATED—There seems to be a reluctance on the part of some of our agricultural leaders to emphasize the importance of lowering the per unit cost of production, for fear that the subsequent efficiency may contribute to our so-called burdensome surpluses. We cannot dismiss the fact that farm surpluses present a real knotty problem, but we can dismiss the contention that inefficiency leads to a cure.—*Dr. Russell Coleman, executive vice president, National Plant Food Institute, in a talk before a meeting of the American Agricultural Editors' Assn. in Washington.*

Transportation Revolution Brings MNF Warning

CHICAGO—The current revolution in the transportation of grain and grain products is causing concern among flour millers. Already the transportation committee of the Millers National Federation has suggested that the developments be programmed for discussion at the federation's annual convention in Washington next April, because of their potential impact on the industry.

MNF, in a preliminary examination of the problem, states that several coincidental developments are contributing to the situation.

First, the movement of wheat by truck is growing at a tremendous rate. This is the case both as to volume of grain so handled and the distances of hauling. A decade or so ago, it was unusual for wheat to be trucked as much as 100 miles, but now it is common for truck shipments of grain to go far greater distances. It is an everyday occurrence to hear about the movement of wheat by truck from Pennsylvania to the Carolinas, from the Dakotas to Minneapolis, from Texas to Kansas City and from Montana to Los Angeles, just to mention a few of the regular routes which wheat is taking in large quantities by motor transport.

Secondly, there are signs of an expansion in the volume of water-borne shipments of wheat and flour on the larger rivers in the central area of the country. Barges are carrying these commodities from Minnesota and Kansas as far southeast as the Knoxville-Chattanooga area, MNF points out. There are no signs of a major revival in coastwise shipping, but this is always a possibility.

The rise in rail freight rates is cited as one reason for this switch in transportation methods. The carriers have suffered from rising expenses, but they have no other method to combat this than to raise rates. Cheaper and more elastic forms of transportation have mushroomed because of this. It is only recently that some rail executives have begun to think that maybe they have been wrong and that they must reduce rates in order to keep wheat and flour traffic on their rails.

MNF comments that the invasion by trucks and river barges of what has been an almost exclusive rail movement is much more serious to millers than just a matter of rates, no matter how important the latter may be. As water and highway transportation grow, the transit system is weakened. The weakening process could well continue until this system is destroyed.

The transit system is a vital part of the grain products industry. It has permitted the industry to develop in various convenient locations between the areas of production of wheat and the areas of greatest consumption. A serious weakening of the transit system might well make many mill locations obsolete and seriously depreciate the value of other locations.

If the transit system goes into discard, there would probably be a wholesale relocation of flour mills, MNF suggests.

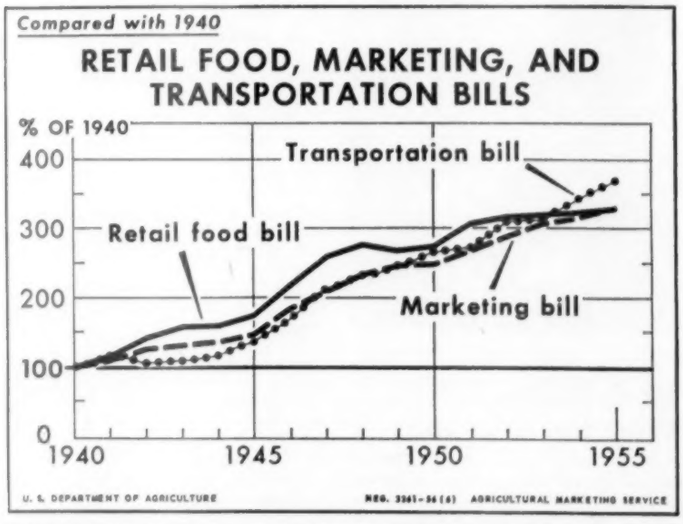
Since outside influences are at work in bringing about this state of affairs, there is little that the millers can do about it, except bring it to the attention of the rail executives, MNF concludes.

—BREAD IS THE STAFF OF LIFE—

Biscuit Production

WINNIPEG—Smaller amounts of plain and fancy biscuits and soda biscuits, but increased quantities of ready-to-serve cereals, were reported by Dominion Bureau of Statistics in its survey of processed foods production in the second quarter of 1957.

Production figures for that period, with last year's comparable statistics in parentheses, include plain and fancy biscuits 51,042,596 lb. (54,065,423); soda biscuits 10,140,680 lb. (12,428,883); ready-to-serve cereals 26,266,992 lb. (24,773,469); dry macaroni 20,570,928 lb. (22,056,332); canned macaroni 9,155,852 lb. (9,674,327), and prepared cake mixes 7,441,924 lb. (12,417,186).



MARKETING COSTS—The cost of food transportation is discussed in a new publication of the Agricultural Marketing Service of the U.S. Department of Agriculture. The chart above shows how the transportation bill has outstripped the cost of food in 15 years. The 23-page booklet is available as USDA Miscellaneous Publication No. 738 from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., at 15¢ per copy.

Lewis E. Russell

L. E. Russell, Former Pillsbury Executive, Dies of Heart Attack

MINNEAPOLIS—Lewis E. Russell, 46, at one time a divisional vice president of Pillsbury Mills, Inc., and with the former Doughnut Corporation of America, died Oct. 6 following a heart attack. Mr. Russell retired from Pillsbury this summer to operate the Biltmore Inn in Edina, a restaurant offering bakery foods for take-home sale.

Mr. Russell joined Pillsbury after 14 years in the food and baking industry, during which time he was associated with Doughnut Corporation of America, now DCA Food Industries, Inc. and was made vice president of Pillsbury in 1945, becoming director of mix manufacturing in 1949. He was responsible for production of all consumer mix items.

Mr. Russell was born in Pottstown, Pa. He was a charter member of the Edina Rotary, a member of Gyro International, Interlachen Country Club, St. Stephen's Episcopal church, Edina Masons, Scottish Rite, and the American Society of Bakery Engineers.

Survivors include his widow, Betty; two daughters, Betty Lou and Patricia Jane; his parents and three brothers.

Glidden Announces Plant to Produce Edible Protein

INDIANAPOLIS—A new $4 million edible protein plant, reported to be the world's first facility for commercial production of this soybean derivative, will be constructed here by the Glidden Co., Dwight P. Joyce, chairman and president, has announced.

The new plant, Mr. Joyce said, will make a contribution to better human nutrition through the production of concentrated edible proteins, latest research achievement of Glidden's chemurgy division scientists. Construction of the new plant will begin immediately, Mr. Joyce said.

The new protein product will be marketed under the registered trademark, "Promine." Promine, when incorporated in staple foods, builds up protein levels to considerably higher nutritive standards and imparts many desirable physical characteristics to such products, Mr. Joyce said.

The soybean-derived protein is the result of years of research by Glidden's chemurgy division, and it has been tested exhaustively in many leading food laboratories throughout the U.S., Mr. Joyce said.

Promine has been available in limited quantities for the past three years. It promises a wide variety of uses in bakery products, all types of breakfast foods, senior foods, baby foods, desserts and scores of other food items, Mr. Joyce said.

The plant will be operated by Glidden's Chicago-based chemurgy division. Richard O. Westley, vice president, directs operations of the division, which operates a 3 million-bushel grain elevator and soybean processing plant in Indianapolis, as well as two large elevators and a processing plant in Chicago.

—BREAD IS THE STAFF OF LIFE—

CANADIAN PRICE INDEX

WINNIPEG — Canada's wholesale price index, on the 1935-39 base, moved downward negligibly between July and August to 227.6 from 228.2, according to the Dominion Bureau of Statistics. The index of farm product prices dropped slightly to 212.6 from 212.7. The animal products index advanced to 271.3 from 270.2.

Profit Improvement Achieved By Centennial Mills

SEATTLE — Consolidated net income of $91,667.87 for the fiscal year ended June 30, 1957, was reported by Moritz Milburn, president of the Centennial Mills, Inc., in his annual statement to shareholders. Net income compares with a consolidated net loss of $47,883.55 in the previous fiscal year.

In making his report Mr. Milburn stated: "Highly competitive conditions in the flour milling industry have continued and have resulted in ridiculously low profit margins. The problem of earning a return for Centennial stockholders on their sizable investment has been made difficult by area-wide and industry-wide disposition to sell the flour output at inadequate profit margins. During this period of intense competition circumstances developed which resulted in the closing of six flour mills in the Pacific Northwest during the past two years.

"The Centennial board of directors has been highly concerned about the unfavorable earnings results and has seen to it that the company maintained a strong financial position during this difficult period. Plants have not only been well maintained, but labor saving devices have been installed in order to improve company efficiency and to allow the reduction of unit production costs. The costs to the company of a $100,000 a year increase in its salary and wage account has been minimized by reductions in personnel wherever possible. Close scrutiny is now, and will be, given to all phases of our operations so that improved earnings can be achieved as soon as conditions permit. Increased volume of flour

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George W. P. Heffelfinger

Allan Q. Moore

George W. P. Heffelfinger to Head Minneapolis Grain Exchange

MINNEAPOLIS — George W. P. Heffelfinger, executive vice president, F. H. Peavey & Co., and president, Russell-Miller Milling Co., was elected president of the Minneapolis Grain Exchange, succeeding Howard I. McMillan. Mr. Heffelfinger has been a member of the exchange board of directors since 1947. He will be the 65th president in the exchange's 76-year history.

Philip S. Duff, vice president, Archer-Daniels-Midland Co., was elected first vice president. Allan Q. Moore, vice president, Pillsbury Mills, Inc., was elected second vice president, representing milling.

P. E. Paquette, executive vice president, Osborne - McMillan Elevator Co., was elected a director for two years, representing terminal elevators. Ralph H. Hegman, vice president, Kellogg Commission Co., was named a member of the board of arbitration for two years.

Directors re-elected for two-year terms were D. E. Fraser, president, Cereal Grading Co., representing shippers; Truman J. Beggs, vice president, Russell - Miller, representing country elevators; John S. Gage, director of grain operations, General Mills, Inc., representing milling; and Ralph C. Bagley, president, George C. Bagley Elevator Co., representing country elevators.

Members of the board of arbitration re-elected for two years are Oscar F. Clayton of Emory C. Ensign, independent traders.

Re-elected to the board of appeals are D. C. Moore, Pillsbury, H. W. King, Van Dusen-Harrington, and L. F. McCabe, McCabe Co.

Less Winter Wheat Acreage Being Placed in Soil Bank

WASHINGTON—A big drop in the number of sign-ups of winter wheat "allotment" land for the 1958 acreage reserve of the soil bank is shown in the U.S. Department of Agriculture's progress report.

According to reports from the 36 states in the commercial wheat area, 94,181 acreage reserve agreements, covering 2,544,736 acres, had been signed by farmers for the five-week period ended Sept. 27. The 1958 winter wheat acreage reserve sign-up began Aug. 26 and was closed Oct. 4.

Through a comparable period a year ago, 6,392,561 acres had been offered to the soil bank through signing of 106,485 agreements for the winter wheat acreage reserve. At the end of the winter wheat sign-up period last year a total of 10,690,000 acres was reported before some later cancellations.

Last year the sign-ups increased considerably prior to the closing date, but officials this year do not expect any major additions to be disclosed during the final period of the sign-ups. Restrictions on participation and good soil moisture are partly responsible for the lag.

Intended by the government as a surplus-reducing plan parched Southwest farmers viewed the 1957 acreage reserve operation as a relief program which kept their heads above the waters of hopeless debt. This year most allotment acreage in the area has been seeded into wheat, in many cases overseeded by farmers who will pay the penalty on this excess grain in hopes of marketing it later if another drouth comes along.

The 1958 winter wheat acreage reserve sign-up was started a week earlier than in 1957 and was continued for six weeks as compared with five weeks last year. The fifth week of the 1958 sign-up is compared with the fourth week of the 1957 sign-up to show how the program compares in the next to last week of sign-up.

For the 1958 sign-up so far reported, the acreage per contract is 27 acres as compared with 60 acres a year ago. The average amount of money per contract is running around $546.61 for 1958 as compared with $1,057.11 a year ago.

Participating farmers so far in the 1958 program will be eligible for payments totaling $51,479,998 if they comply with their agreements. The maximum payment during the comparable period a year ago totaled $112,566,626.

Business Prospects:

Harry A. Bullis Declares Economy Is Basically as Strong as Ever

Statement for the press by Harry A. Bullis, Chairman of the Board, General Mills, Inc., Minneapolis, Oct. 7, 1957.

I believe our economy is basically as strong as ever, that the current fourth quarter will be good and that 1957 will go down in history as a record year.

On the other hand we must remember that in a free economy such as ours where the freedom to work, to spend, and to invest is not controlled by the state through intimidation or force of arms, there will always be shift and flux. There will be high points and low points. No boom can last forever.

By the same token we should emphasize that there is absolutely no reason to believe that we will have a major depression. There will be downturns, of course—but these are in the nature of "breathing spells." We are very likely in one right now.

A youth running up hill stops to catch his breath before struggling on; a growing business slows up to consolidate its gains and then moves ahead again; so our economy, which has outpaced itself in some areas, will go forward after pausing to get back into balance.

Consumer Still King

We note that the consumer is still king in this economy of ours. Right now this "king" is not curtailing his expenditures. But he is becoming more discriminating. It's up to industry to entice him in the market place. We of industry must produce those things that will cause him to part with his money.

The tight money policy is designed to restrain inflation and curb too rapid expansion of plant facilities. It is not likely that we shall see lower interest rates in the near future. Likewise it is not probable that prices will rise rapidly in the months ahead. In other words, the stage will be set, for a resumption of consumer spending after this current plateau.

The plateau is very high, and our economy is now moving sideways on it. Gross national product, which is the total amount of goods and services produced in this nation, reached an annual rate of $434.3 billion in the second quarter of 1957, or about $8 billion over the big fourth quarter of 1956. It will probably reach a rate of $442 billion in the last quarter of 1957. However, much of the increase is the result of increased prices rather than increased volume.

Personal income continues its upward trend with the second quarter at a rate of $342.4 billion, which was $17.1 billion above the second quarer of 1956. For the past six years, with the exception of 1954, personal income has risen more than $15 billion annually.

Personal consumption expenditures are a great expansive force in our economy. These expenditures have been keeping pace with rising incomes, and retail sales were at a new record high for each of the past five months.

This constant high demand for consumption goods keeps the pressure on businessmen to expand plant facilities. The shortage of labor requires that old plants and facilities be modernized to improve productivity.

The large capital outlays by business are another great force for economic expansion. Expenditures for plant and equipment appear to be leveling off at an estimated $37 billion for the year, 6% above the 1956 record.

Government expenditures are also a powerful factor in business momentum. While defense spending may be slightly lower, the total of government disbursements will continue to be high.

Agricultural Situation Improving

The agricultural situation seems to be improving with net farm income slightly better than last year.

Employment dropped 800,000 in August from the July peak. The drop was in the agricultural sector. At the same time unemployment declined by 400,000 as students and housewives left the labor force. Unemployment in August was 3.8% of the labor force. We still have full employment.

The index of industrial production showed no change in June, July and August. The fourth quarter should show some improvement.

Consumer prices and wholesale prices were up slightly in August, according to the indexes. During the first half of September the wholesale prices of farm products and processed foods declined.

When we look at the years ahead and see the huge increase in the number of people to be fed, clothed and housed we should be exceedingly optimistic. The American people continue to demand improved standards of living. American business has the know-how and the means of providing it for them.

Hugh O. Horton

Hugh Horton Retiring From Roanoke Mills

ROANOKE, VA.—Hugh O. Horton is retiring as vice president of Roanoke City Mills, Inc., after 40 years service with the organization. Mr. Horton came to Roanoke City Mills from Nashville, Tenn., as sales manager, a position he held until 1952 when he became vice president in charge of purchasing—flour and feed mill divisions.

Continental Baking Revises Formulas After FDA Action

WASHINGTON—A preliminary injunction issued Oct. 3 for the Food and Drug Administration requires the Continental Baking Co. to stop interstate shipments of bread conflicting with government standards.

Continental attorneys advised the court that Continental has revised its formulas and advertising to satisfy FDA requests. The company was commended by George P. Larrick, commissioner of food and drugs, for the prompt steps taken to comply with the order.

FDA has urged bakers to review their bread formulas and labels in the light of the order issued by the court. Under the preliminary injunction the company is required to stop interstate shipments of white bread or enriched bread which:

(1) Is labeled with the names "buttermilk bread" or "buttermilk enriched bread."

(2) Contains nitrated flour, an ingredient not permitted by the standard for enriched flour.

The order also prohibits the company from using the word "buttermilk" on any label for standard bread which contains "dried buttermilk." The injunction will remain in effect until a final decision is reached on a permanent injunction. In granting the temporary injunction, the court told the government that it would expect regulatory action to be taken against all other firms who are distributing products labeled in a similar manner.

Attorneys for Continental Baking Co. advised the court that the use of nitrated flour has been discontinued in all its plants in the formula for enriched bread and that the labels bearing the names "buttermilk bread" and "buttermilk enriched bread" have also been discontinued.

Commenting on the court's action, George P. Larrick, FDA commissioner, said: "This case involves playing up a single ingredient, buttermilk, in a way calculated to create the impression that the bread is superior or different from standard white bread or enriched bread. Our action is the first step in a regulatory program to secure better compliance with the bread standards. We urge all bakers to review their formulas and labeling for bread to insure that they comply with the law in all respects."

—BREAD IS THE STAFF OF LIFE—

Sturtevant Mill Co. Names G. P. Towle New President

DORCHESTER, MASS.—George P. Towle, formerly executive vice president and general manager of Sturtevant Mill Co. of Dorchester has been named president of the company, succeeding William T. Doyle, who becomes chairman of the board of directors.

Clayton F. English, formerly production manager for the company which engineers and fabricates dry processing machinery, assumes the executive vice presidential post. Joseph L. Sturtevant remains treasurer of the corporation.

The Dorchester firm offers micron grinding services to industry, and engineers and fabricates a complete line of micron grinding equipment, dry batch blenders, air separators and other dry processing machinery.

C. G. McClave

Montana Flour Mills Returns Directors, Company Officers

GREAT FALLS, MONT—At the 47th annual shareholders' meeting of Montana Flour Mills Co. held here recently R. J. Anderson, J. C. Berky, E. F. Galt, Newell Gough, Jr., H. M. Hamilton, N. J. Holter, A. W. Johnson, C. G. McClave, J. D. Stephenson, A. F. Strobehn and L. E. Taylor were reelected directors.

At the directors' meeting the following were reelected to the offices indicated: C. G. McClave, president and general manager; J. C. Berky, first vice president and assistant general manager; Harry Wallace, treasurer; C. H. Wright, secretary; H. C. Johnson, vice president in charge of formula feed division and assistant treasurer; E. M. Murphy, vice president in charge of flour sales and assistant secretary; W. V. Gannon, vice president in charge of production.

—BREAD IS THE STAFF OF LIFE—

J. S. Hart, Retired Grain Man, Dies at 83

KANSAS CITY—J. S. (Sol) Hart, 83, well known southwestern grain dealer, died Oct. 1 after two years of failing health. In June, 1949, Mr. Hart retired as chairman of the Hart-Bartlett-Sturtevant Grain Co., Kansas City, but had continued an association with his sons in the Hart Grain Co.

Mr. Hart was a leading figure in Kansas grain circles for many years. He moved to Kansas City in 1920 from Randall, Kansas, where the Hart family had extensive farming properties and operated an elevator, lumber yard and hardware store. In that year he became chief of the Kansas grain inspection department and in 1923 entered the grain trade. He was a partner in the Denton-Hart Grain Co. and later in the Logan Bros.-Hart Grain Co. before joining in the Hart-Bartlett-Sturtevant firm in 1933.

He was elected president of the Kansas City Board of Trade in 1935 and served in many other important positions of the exchange. Active in Kansas politics, he was a state legislator and state senator for some years. Mr. Hart also was active in many civic and fraternal affairs in his home town of Kansas City.

Two sons, Kenneth S. Hart and James H. Hart, are associated in the Hart Grain Co., Kansas City. Also surviving are another son and a daughter.

Milling Industry and Research

Future Problems Analyzed; Collaboration a Necessity

By Atherton Bean
President, International Milling Co.
Minneapolis

A PAPER PRESENTED TO THE WHEAT UTILIZATION RESEARCH CONFERENCE AT PEORIA

DESPITE the popular picture of this industry as one in which little has altered for generations, deep changes, both economic and technical, have taken place within it over the last half century. We can be sure that change will continue, and the cereal chemist is certain to be right in the center of both the technical and the economic aspects.

Let me outline some of the things that can probably be expected over the next few years:

Wheat

(a) There are likely to be continued restrictions on wheat acreage with a shift in the balance of wheat qualities, particularly a reduction in production of the high protein types, as low rainfall areas go into the Soil Bank or its successors.

(b) There may be increased wheat production in the non-commercial areas.

(c) There will be a continuing flow of new varieties designed to meet specific disease and economic problems.

Flour Milling

(a) There is likely to be static to slightly improved domestic consumption, but of changing bakery products.

(b) The importance of the sack as a container will decline. The movement toward bulk handling will put a new premium on uniformity of flour quality.

(c) The export business will shift—old markets may be lost to mills built behind tariff walls, but new ones will take their place as the standard of living rises and the bread-eating population of the world grows. These new markets will go to the companies that assess their requirements accurately and supply them consistently. It should be recognized that many of these markets are in tropical and semi-tropical areas.

(d) There will be increased extraction of endosperm at given ash levels which will alter many other factors of flour quality.

(e) The decline in differentiation between spring, hard winter and soft winter wheat flours, and the increase in description of flours by their physical characteristics, will continue. It will require increased blending of wheats and flours by mills.

(f) The current trend toward deemphasis of ash and protein as an absolute measure of flour quality will continue.

Baking

(a) We can assume a continuation of control of larger and larger segments of the baking industry by chain organizations with competent and imaginative research and control departments.

(b) We can assume a continuation of the mechanization trend and a pronounced swing toward bulk handling in large bakeries.

(c) An aging population may be attracted to new bakery products with specialized nutritional characteristics.

Such an outline, the particular points of which I shall not try to discuss, is enough to make one realize that we will live in a world where ideas of appropriate quality and the ways of achieving appropriate quality will be in constant flux. You gentlemen of the cereal chemistry profession will be in the center of the discussions as to what changes shall be made and when they shall be made. But for all my high regard for cereal chemists, I must confess that I am frequently and frustratingly impressed by how little is really known in cereal chemistry, and how much our batteries of tests do not tell us about what the baker requires and what wheat to buy, and how to mill it for him. This depressing lack of knowledge gets us into trouble today, and I would guess that it will be increasingly critical as time goes on.

We need new methods of processing and evaluation. They can be found provided sufficient time, money, and energy are applied to the quest. You know, in the popular mind we millers are not supposed to attend meetings of this kind at all. We belong to an ancient, reasonably honorable, thoroughly stagnant and aggressively anti-intellectual industry that has been confident for generations that technology might have its lessons and its opportunities for some industries, but not for this one. Lots of textbooks tell us this. Lots of magazine articles have described the milling industry in this way. I am sure the general public believes this. If you don't think so, try recruiting some

Atherton Bean

(Turn to ATHERTON BEAN, page 31)

Southwest Flour Buying Heaviest Since Bookings of Late July

Flour buying broke out in the Southwest again during the seven-day period ending Oct. 4, with some chain bakeries and independents booking hard winters for 30, 60, and even a few for 90 days. Buying was, in some respects, a continuation of the interest which had broken out briefly the previous week and then subsided almost as abruptly. Last week's spurt spread to the central states and resulted in a fair amount of soft wheat flour business. By contrast, most market factors in the spring wheat mills area were not conducive to buying, and the week was dull and inactive.

Prices reported in The Northwestern Miller's market reviews are for flour packed in 100-lb. cotton sacks unless otherwise specified. Mill list prices are quoted in the principal manufacturing centers and sales prices in the larger distributing centers. They represent average wholesale levels and do not take into account high or low extremes at which occasional individual sales may have been made.

Buying of hard winters in the Southwest represented the first activity of any consequence in that area since the heavy bookings made late in July and early in August. Prices at which sales were made last week were reported to be around 10¢ below quotations at which July and August bookings were made.

Buying pushed sales in the Southwest to 246% of five-day capacity for the week, compared with about 85% in the central states and only 32% in the spring wheat mills area.

Because most bakers are now well supplied, the trade appears generally agreed that there is little likelihood of additional buying in quantity before the first of the year.

The over-all picture the past week disclosed shipping directions tending to decline from the heavy rate of the past several weeks. A similar decline in over-all mill running time from the heavy grind of recent weeks is also indicated.

Production by mills of the U.S. for the week amounted to 108% of capacity, compared with 112% the previous week and 110% a year ago. Production was up slightly at Minneapolis, in the central states and the Southeast, and on the North Pacific Coast. (See tables on page 9.)

Northwest

Minneapolis: Flour prices here worked 5 to 7¢ higher last week on top of similar increases made the previous week. As in the previous period, the rise was the result of stronger cash wheat quotations and the desire of mills to cover the gap left by an extremely weak millfeed market. There was little buying interest on either rise, however, with bakers having indicated earlier that their own ideas of prices are considerably lower than those at the mills.

Mill representatives, viewing the good run of bookings in the Southwest last week, admitted that there is room for purchasing of spring types, but added that it is not likely to occur unless prices come down considerably. And they hasten to point out that the present level of millfeed prices, near to distress, and the rising wheat costs are working against such declines in flour quotations.

Spring wheat clears were in good demand locally, in contrast with the over-abundance of that type reported in the Buffalo area where mill grind has been heavier the past several weeks.

The family flour business was quiet, with indications that at least one mill may launch a promotional plan soon to move its smaller, 5-lb. sizes of advertised brands.

Sales by spring wheat mills amounted to 32% of capacity for the week, compared with 31% the previous week and 56% a year ago.

Shipments by spring wheat mills amounted to 114% of capacity, compared with 110% the previous week and 115% a year ago.

Production by mills at Minneapolis the past week amounted to 109% of capacity, compared with 106% a week earlier and 111% a year ago. Production by mills of the interior Northwest amounted to 125% of capacity, compared with 128% a week earlier and 118% a year ago. Production by mills of the Northwest amounted to 119% of capacity, compared with 120% a week earlier and 114% a year ago.

Quotations Oct. 4, 100-lb. cottons, carlots Minneapolis: Spring standard patent $5.97@6.07, spring short $6.07@6.17, high gluten $6.32@6.42, first clear $5.22@5.80, whole wheat $5.97@6.07; family flour $6.45 for unadvertised brands, $7.35 for advertised brands.

Southwest

Kansas City: Largest sales of hard winter wheat flour since the big seasonal bookings at the end of July were consummated by mills in the Southwest last week. Sales amounted to 246% of five-day capacity, compared with 103% the previous week and 23% a year ago. Only 2% of last week's business was for export or government accounts.

A flurry of buying by bakers Oct. 1 resulted in some substantial bookings by several chain groups and a small percentage of independents. In some instances the bakers took on an additional 90-day supply, but others added only 30 or 60 days to their previous commitments. Some independent bakers who had not booked as far ahead as the industry average took amounts which brought their stocks up to needs until January. On the other hand, some of the large chains and many independents could not be moved to action, even by the relatively attractive price quotations.

In general, the baking industry is now pretty well covered until the first of the year, while some operators are taken care of well beyond that date. In view of the fact that most of the news and price action on wheat lately have been of a bearish character, the good volume of bookings was fairly surprising, and indicated confidence that underlying factors such as loan values and low millfeed prices will keep flour above present levels for the bulk of the year.

There was no corresponding sales interest among the family flour trade. This group is well covered in most instances until the first of the year, and apparently mills were not pushing sales in that direction. Many family flour buyers still own uncompleted contracts at lower than current family price levels, an additional deterrent.

Export interest is light, and only scattered Latin American business is being done. In both domestic and export fields clears were slow to move.

Shipping directions are generally slow. Normally, October is one of the peak months of flour production, and more often than not is the top month of the year in that respect. However, it now appears unlikely that any records will be set for that month this season.

Prices closed the week about 10¢ higher than a week ago for bakery flours, after dipping to the lowest point on the crop. Family prices were unchanged to 20¢ higher.

Quotations Oct. 4, Kansas City, carlots, cottons: Hard winter wheat bakery short patent $5.63@5.68, standard 95% patent $5.53@5.63, straight $5.43@5.53; established brands of family flour $6.65@7.20; first clears $4.65@4.95, second clears $4.55@4.60, 1% ash clears and higher $4.35@4.55.

Wichita: Mills operated five days at capacity last week. Domestic sales, confined almost entirely to bakery flour, averaged 177%, compared with 67% the preceding week and 25% a year ago. Export sales were negli-

(Continued on page 28)

Increase in Semolina Price Fails to Stimulate Buying

The durum and semolina markets during the seven-day period ending Oct. 4 were little changed from the previous week. A 15¢ increase Sept. 27 in the price of semolina failed to generate any interest beyond the usual price-date-of-shipment buying which has prevailed for several weeks.

Durum wheat receipts picked up slightly the past week, just enough to offset mill grind, and prices advanced 1¢ as the new period opened Oct. 7. Running time at the mills was just a shade less the past week than in the previous period.

Production by durum mills for the week amounted to 118% of five-day capacity, compared with 122% the previous week and 111% a year ago.

Prices on durum wheat delivered at Minneapolis Oct. 4 were as follows:

Choice No. 1 amber or better	$2.40@2.43
Choice No. 2 amber or better	2.39@2.42
Choice No. 3 amber or better	2.37@2.40
Medium No. 1 durum or better	2.32@2.39
Medium No. 2 durum or better	2.30@2.38
Medium No. 3 durum or better	2.28@2.36

DURUM PRODUCTS OUTPUT

Durum products output of mills reporting to The Northwestern Miller, in sacks, based on five-day week:

	5-day wk. capacity	Wkly. production	% of capacity
Sept. 30-Oct. 4	155,500	184,329	118
Previous week	156,500	*191,372	122
Year ago	156,500	173,864	111

	Crop year production
July 1, 1957-Oct. 4, 1957	2,216,534
July 1, 1956-Oct. 5, 1956	1,993,990

*Revised

Millfeed Business Slumps, Prices Off Sharply

The millfeed business hit a pronounced slump in the seven-day period ending Oct. 4 as a result of unseasonably warm weather, lack of interest on the part of buyers, and competition from other feed grains and reviving pastures. Prices were almost universally down from the previous period, some as much as $5.25 ton. There were some reports of quotations lower than any since the early 1940's, with little prospect of revival during the current week.

One of the principal reasons assigned for the sluggish sales was the general price weakness in feeds and grains. Most feed mills expected to reduce their price quotations $1 to $2 ton last week. Dealers naturally back off from inventories when price weakness creates apprehension of further declines. Other contributing factors were extensive field work in seeding fall acreages and harvesting of grain sorghums and other late crops in many areas.

Mills last week ran mostly four days, some five days, which was an average below the previous week. Hope was expressed for better runs in the current week. In a few instances the shaving of running time last week was caused by shortages of ingredient stocks, with spot soybean meal and fats rather scarce.

Formula feed orders generally came in slower last week in the Northwest than in the previous week. Most mill repreesntatives said business was quiet and placed the reason on the excellent dry, sunny weather which farmers in this area had been anxiously awaiting to help dry their soybeans and corn. Yield prospects for grain sorghums, corn and soybeans were generally very good and feed grain prices moved downward.

All in all, formula feed prices dropped sharply and were generally $2 ton lower last week compared with the previous period. Soybean oil meal, for example, was down $4.50@5 ton, and other feed ingredients (meat protein, molasses) also declined, contributing to the lower formula feed prices.

The formula feed business was draggy during the week ending Oct. 4, and many factors drew the blame in the central states. One of the major factors, however, observers reported, was the low return farmers were receiving for some of their products. This makes them more willing to cut corners wherever they can, frequently to the extent that good feeding practices are not followed.

For instance, many hog raisers were running their hogs in corn fields as long as possible. Excellent fall pastures also were helping some animal producers skimp on the proportion of formula feeds in rations. Low priced grain also seemed to be working against formula feed consumption. The consensus now is that the best thing that can happen for feed business is an outbreak of cold weather.

Mills in the Northwest, Southwest, and at Buffalo, representing 75% of the combined flour milling capacities of those areas, reported production of 54,529 tons of millfeed last week. Production for the current week compared with an output of 57,219 tons in the previous week and 55,999 tons in the corresponding week of a year ago.

Mill Hedging Brings Sharp Rise in Wheat Futures

Wheat futures did an about face in the seven-day period ending Oct. 7, displaying strong gains for the first time since the first week in September. The firming tendency came as the result of heavy flour buying in the Southwest and a revival of export interest. Cash wheat values, in turn, were carried higher by the strengthening of the basic December contract.

Closing prices of wheat futures Oct. 7 were: Chicago—December $2.18¾@⅞, March $2.22¾@⅞, May $2.18¼, July $1.98¼@1.98, September $2.00⅜; Kansas City — December $2.13⅝@½, March $2.17¾, May $2.10⅜, July $1.92⅝; Minneapolis—December $2.27⅝, May $2.24¾.

The first hard winter wheat flour buying of any appreciable size since early August was followed by active mill hedging to cover sales. Covering was sufficient to push the December contract 1¾¢ higher at Kansas City Oct. 7 than at the close of trading seven days earlier. Some flour buying slopped over into the central states during the week, with consequent covering there pushing the basic December contract 3⅝¢ higher Oct. 7 than on Sept. 30. Although there was little flour buying in the spring wheat mills area, the combination of bullishness elsewhere caused fractional increases in futures.

Renewed export buying, although not on a spectacular scale, helped bring about the sharp price advances. Poland and the U.K. reportedly purchased 1 million bushels of hard and red wheat. Although not an effective factor in the interior markets, Japan bought 1.5 million bushels of West Coast white and 375,000 bu. Canadian wheat the past week.

Despite the sharp reversal of price direction, the strong bearish pressures of the past several weeks were still powerful factors throughout the period, and may again climb to a dominant position if additional price support is not forthcoming.

More reports of good crops abroad in most areas except Australia persist in giving a damping effect to the export picture. An additional bearish factor was inserted the past week when it was reported that Greece, like other European countries, expects to decrease its imports of wheat in 1957-58 because of a good crop at home. If reports are correct, Greece expects a 1957-58 wheat crop of 58.8 million bushels, or nearly 30% more than in 1956-57. Estimates have been made that Greece's wheat imports for the crop year 1957-58 may drop to about 250,000 tons, compared with 561,000 tons imported in 1956-57.

The Galvin crop report released the past week also created bearishness with its estimate of 6 million bushels more of U.S. wheat production this year than reported a month earlier. This may be offset, however, by a sharp increase in wheat impoundings, which have to date lagged considerably behind last year, but which may be picking up now, with a consequent withdrawal of supplies from free market channels and eventual strengthening of prices.

Wheat receipts at the primary markets during the week ending October 3 totaled 7.3 million bushels, compared with 7.5 million the week before. Although there was a fair amount of flour business reported during the period, it was pretty much confined to southwestern mills, and at Minneapolis trading was quiet. Wheat prices were helped by the light offerings which totaled only 1,448 cars, with about 100 of these for CCC account. The market held fairly steady, with a good demand for daily arrivals. The basis was easier at the close, but the Minneapolis December price advanced enough to about offset the lower premiums. At the close Oct. 4, No. 1 Dark Northern Spring, or No. 1 Northern Spring wheat, through 11% protein traded at 3@5¢ over the December price; 12% protein 3@6¢ over; 13% protein 5@8¢ over; 14% protein 6@11¢ over; 15% protein 10@15¢ over; 16% protein 13@19¢ over; 17% protein 17@23¢ over the December. Minneapolis December wheat closed at $2.28 Oct. 4. The average protein of the hard red spring wheat tested at Minneapolis during the week was 14.06%, compared with 13.65% the same week last year.

Demand held up well for good durum wheat and choice milling durum was trading higher. The top of the medium milling durum schedule also showed an advance. Others were unchanged to 2¢ higher, with the poor grades moving rather slowly. (See tables on page 8.)

The approximate range of cash wheat prices at Minneapolis Oct. 4 is shown in the accompanying table together with premiums and discount factors:

No. 1 Northern or No. 1 Dark Northern Spring, 58 lb.

Ordinary	$2.31@2.33
11% Protein	2.31@2.33
12% Protein	2.31@2.34
13% Protein	2.33@2.36
14% Protein	2.34@2.39
15% Protein	2.38@2.43
16% Protein	2.41@2.47
17% Protein	2.45@2.51

Protein premium for over 17%, 1¢ each ¼% higher.

Test Weight Premium and Discount Scale

One cent premium each lb. over 58 lb. 1¢ discount each ½ lb. under 58 lb.

Prices Swing Up

Hard winter cash wheat values at Kansas City swung upward in the week ending Oct. 7, the advances amounting to 1¼@2¾¢, and coming mainly on the stronger basic option price.

Changes in values occurred on wheat in the ordinary and up to 12.50% protein brackets. On the low side of the range premiums on ordinary dropped 1¢, and on wheat of 12% and 12.50% protein fell ½¢. The high side of the ordinary premium structure was up ½¢. The basic December option increased 2¼¢.

Although receipts at Kansas City were enlarged from the previous week —412 cars compared with 310—cash sales were not substantial because much of the wheat was not earmarked for competitive sale. Sales indicated by the Board of Trade amounted to 95 cars, starting off good in the early part of the week, but dwindling to 10 cars on Oct. 5.

Receipts were the largest since the end of August, bearing out the fact that many interior subterminal and country elevators are reducing their stocks to make room for the feed grains that are starting to come in.

Demand was rated as quite good for wheat with good milling qualities. Ordinary and off-grade blending wheat met with duller interest. A spurt in flour business early last week was regarded as a spur to sustained demand for future receipts.

Premiums were quoted Oct. 7 as follows: Ordinary 2½@1¢ under the basic December option of $2.13½, 12% protein 1½¢ under to 9¢ over, 12.50% protein from the basic option to 12¢ over, 13% protein 3@19¢ over, 13.50% protein 4@21¢ over, 14% protein 5@23¢ over.

The approximate range of cash wheat prices at Kansas City Oct. 4 is shown in the accompanying table:

No. 1 Dark and Hard	$2.10	@2.43
No. 2 Dark and Hard	2.09	@2.42½
No. 3 Dark and Hard	2.07	@2.40½
No. 4 Dark and Hard	2.05	@2.38½
No. 1 Red	2.10½	@2.14
No. 2 Red	2.09½	@2.13½
No. 3 Red	2.08½	@2.12
No. 4 Red	2.06½	@2.11½

At Ft. Worth No. 1 ordinary hard winter wheat was selling Oct. 7 at $2.35@2.36 bu., rail basis, with a premium of 1¢ bu. for each ½% above 12% protein, delivered Texas common points. Truck wheat was selling at $2.10@2.13 delivered north Texas mills. Demand was slow.

Wheat trading slipped off in the Pacific Northwest last week due to lack of demand on the part of millers and exporters. Both are well covered on their old sales. Japan was the only country interested in our wheat, taking three cargoes and a parcel of white wheat for October shipment. Prices slid 4¢ bu. for export varieties by the end of the week. Widespread rains covered the entire Pacific Northwest last week, alleviating a 46-day dry spell. Ground is now in excellent condition for seeding operations.

CURRENT FLOUR PRODUCTION

★ ★ ★ ★ ★

A Statistical Service Provided Continuously for Readers of The Northwestern Miller for More Than Half a Century

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to The Northwestern Miller with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Sept. 30-Oct. 4, 1957	*Previous week	Oct. 1-5, 1956	Oct. 2-7, 1955	Oct. 4-8, 1954
Northwest	789,941	794,023	772,463	797,083	741,783
Southwest	1,401,243	1,469,454	1,401,925	1,347,998	1,245,414
Buffalo	572,241	636,340	578,702	547,426	573,703
Central and Southeast	595,823	588,515	632,782	608,677	584,490
North Pacific Coast	336,184	334,107	326,142	312,029	324,347
Totals	3,695,432	3,822,439	3,712,014	3,613,213	3,469,737
Percentage of total U.S. output	74.2	74.2	75	75	75

*Revised.

	—Percentage of capacity operated in 5-day week— Sept. 30-Oct. 4, 1957	Previous week	Oct. 1-5, 1956	Oct. 2-7, 1955	Oct. 4-8, 1954	Crop year flour production —July 1 to— Oct. 4, 1957	Oct. 6, 1956
Northwest	119	120	114	115	115	9,909,741	9,655,161
Southwest	106	111	106	108	109	17,285,601	17,748,324
Buffalo	117	131	122	115	125	7,917,074	7,695,151
Central and S. E.	104	103	111	106	105	7,411,248	7,464,774
N. Pacific Coast	95	94	92	88	81	4,339,721	4,310,058
Totals	108	112	110	107	110	46,863,345	46,770,468
Two years ago	475,000	547,426	115				
Five-year average			113				
Ten-year average			109				

*Revised.

SOUTHWEST

Kansas City

	5-day week capacity	Flour output	% activity
Sept. 30-Oct. 4	281,750	262,733	93
Previous week	281,750	292,623	103
Year ago	287,500	318,746	112
Two years ago	279,850	308,978	110
Five-year average			101
Ten-year average			97

50 Representative Mills Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% activity
Sept. 30-Oct. 4	1,036,950	1,138,510	109
Previous week	1,036,950	*1,176,831	113
Year ago	1,032,500	1,083,179	105
Two years ago	1,021,350	1,039,020	102
Five-year average			109
Ten-year average			85

*Revised.

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% activity
Sept. 30-Oct. 4	587,250	595,823	101
Previous week	587,250	*588,515	100
Year ago	570,250	632,782	111
Two years ago	570,250	608,677	106
Five-year average			91
Ten-year average			89

*Revised

BUFFALO

	5-day week capacity	Flour output	% activity
Sept. 30-Oct. 4	487,500	572,241	117
Previous week	487,500	*636,340	131
Year ago	475,000	578,702	122

NORTHWEST

Minneapolis

	5-day week capacity	Flour output	% activity
Sept. 30-Oct. 4	231,000	252,346	109
Previous week	231,000	*243,714	106
Year ago	237,000	262,402	111
Two years ago	237,000	268,472	113
Five-year average			104
Ten-year average			102

*Revised.

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% activity
Sept. 30-Oct. 4	430,500	537,595	125
Previous week	430,500	*550,309	128
Year ago	430,500	510,061	118
Two years ago	454,500	528,611	116
Five-year average			103
Ten-year average			103

*Revised.

PACIFIC COAST

Principal Mills on the North Pacific Coast (Seattle, Tacoma, Interior Washington Mills, Portland and Interior Oregon Mills):

	5-day week capacity	Flour output	% activity
Sept. 30-Oct. 4	353,950	336,184	95
Previous week	353,950	334,107	94
Year ago	353,950	326,142	92
Two years ago	353,750	312,029	88
Five-year average			90
Ten-year average			89

MILLFEED OUTPUT

Production of millfeed in tons for week ending Oct. 4, and prior two weeks, together with season total of (1) principal mills in Nebraska, Kansas and Oklahoma and the cities of Kansas City and St. Joseph; (2) principal mills of Minnesota, Iowa, North and South Dakota and Montana, including Minneapolis, St. Paul and Duluth-Superior; (3) mills of Buffalo, N.Y. Production computed on the basis of 72% flour production.

	Southwest* Weekly production	Crop year to date	Northwest* Weekly production	Crop year to date	Buffalo† Weekly production	Crop year to date	Combined** Weekly production	Crop yr. to date
Sept. 30-Oct. 4	28,375	350,047	15,167	193,663	10,987	154,738	54,529	698,448
Prev. week	29,756		15,245		12,218		57,219	
Two wks. ago	28,871		14,629		12,499		55,999	
1956	28,388	356,417	15,610	191,790	11,719	159,470	55,717	698,677
1955	27,294	354,207	16,088	187,333	11,019	94,646	54,431	636,486
1954	25,219	353,666	14,970	191,041	11,144	145,912	51,333	692,719
1953	25,390	343,885	15,198	200,591	9,910	139,176	50,398	683,652

*Principal mills. **74% of total capacity. †All mills. ‡Revised.

Cross Section of Industry At Utilization Conference

PEORIA, ILL.—A cross section of the milling industry—representatives of management, production, research, engineering and products control—met with government research workers at the second annual wheat utilization research conference here on Oct. 1-2.

Organizing the discussions were the Northern and Western Utilization Research and Development Divisions of the U.S. Department of Agriculture and the technical advisory committee of the Millers National Federation.

To meet the 52 representatives from the milling industry were 40 government workers — four from Washington; three from Albany, Cal., headquarters of the western division, and 33 from the Peoria division.

One milling technologist commented that the conference was an excellent opportunity for the industry to air its problems and to give the government research workers the means of learning the needs of the trade in wheat research. The success of the second conference, he feels, indicates the need for a continuation of the program. Suggestions have been made that another conference be held in 1958, either at Peoria or at Albany.

Presiding over the opening session was W. D. MacClay, director of the northern division and the welcome was voiced by G. W. Irving, Jr., deputy administrator of the Utilization Research and Development, Agricultural Research Service. Atherton Bean, president, International Milling Co., underlined the importance of research to the milling industry and he was followed by F. R. Senti, head, cereals crops, northern division, who spoke about wheat and other cereal grain research at Peoria. George O. Kohler, spoke about similar research undertaken at the western division.

ATHERTON BEAN.....Page 7

A tour of the USDA laboratories at Peoria concluded the opening session. Hosts at the stations were Roy A. Anderson, Neil W. Taylor and H. H. Dutton of the northern division and J. E. Simpson of the western division.

Mr. Senti presided over the afternoon session which was opened with a report on a survey of literature of wheat conditioning by Dr. Majel M. MacMasters, northern division. Dale K. Mecham, western division, discussed lipids, proteins and baking characteristics of soft wheats. Dr. MacMasters then reported on the kernel structure and milling properties of midwestern soft wheats. C. L. Mehltretter, northern division, closed the session with a discussion of chemical modification of wheat gluten and flour.

Dr. Betty J. Sullivan, vice president and director of research, Russell-Miller Milling Co., Minneapolis, presided at the opening session Oct. 2. Fred M. Atkinson of the Atkinson Milling Co., Minneapolis, told of wheat conditioning problems and research to solve these problems. Engineering problems and current research in the milling industry was related by Lyle C. Mertz, General Mills, Inc., Buffalo, president of the Association of Operative Millers. Biochemical problems and current research in the industry were discussed by R. K. Durham, Pillsbury Mills, Inc., Minneapolis.

FRED M. ATKINSON...Page 14

Presiding at the final session was C. E. Rist, assistant director, northern division. R. J. Dimler, northern division, gave a progress report on other wheat research projects in his division. The progress report on similar projects of the western division was given by Mr. Kohler. A discussion of suggested problems for future research on wheat concluded the conference.

Carl F. Dietz

Carl F. Dietz, 77, Former Milling Official, Dies

CLEARWATER, FLA. — Carl F. Dietz, 77, former executive vice president of the Commander-Larabee Milling Co., Minneapolis, and administrator of the millers' trade code in NRA days, died here Oct. 4.

He had retired in 1951 as president of the Manufacturers Association of Syracuse, N.Y., where he had lived since 1937. He was also chairman of the board of the Lamson Corp. of Delaware.

From 1930 to 1932 he was prominent in the reorganization of the Commander firm. By profession he was an engineer, but during the early thirties he participated in reorganization planning for companies such as the Bridgeport Brass Co., of which he was general manager, and several other eastern firms.

In August, 1933, he was appointed general administrator of the code for fair competition in the flour milling industry by the executive committee of the Millers National Federation. Becoming a member of the MNF staff, he developed a plan for the enforcement of the millers' code under the National Recovery Administration.

Surviving are his widow, Katherine Vane Dietz; two daughters, Mrs. Elliott K. Reich, Bridgeport, Conn., and Mrs. Lawrence W. Rotan, Baltimore, Md.; a sister, Mrs. Wilhelm Pauk, New York City, and two granddaughters.

Contract Signing for Philippines Mill

Pictured signing the contract for the erection of the first flour mill in the Philippines, the cost being estimated at $1 million, are, left to right, V. R. Webb, representing Thomas Robinson & Son, Ltd., Rochdale, England, builders of the mill; Dr. Salvador Araneta, chairman of Republic Flour Mills, the owners; Jose Concepcion, president of RFM; Mrs. Victoria L. de Araneta, treasurer, and Jose Concepcion, Jr., secretary and assistant treasurer of RFM.

AOM Technical Committee Outlines Year's Activities; Hears Reports

PEORIA, ILL.—Reports on wheat conditioning, instrumentation, mill operating efficiency and modernization projects were heard during a meeting of the technical committee of the Association of Operative Millers at Pere Marquette Hotel, Peoria, Sept. 29-30. Manufacturers' representatives also appeared before the committee, and plans were made for participation in the 1958 AOM technical conference at Minneapolis May 5-8.

Tibor A. Rozsa, Pillsbury Mills, Inc., Minneapolis, presided as the committee organized its activities and outlined its work for the year. A brainstorming session listed several program subjects for panel discussion and topics for speakers at the conference. The session was the result of a challenge from the AOM program committee of 1958.

The technical committee will again sponsor a "What's New" presentation during the conference. It was reported during the meeting that a full slate of manufacturers is ready to report on new products and that half of the presentation time has been assigned to air separator manufacturers.

Project Reports

A report of the wheat conditioning sub-committee was presented by W. Francis Rowe, Pillsbury, Minneapolis, on "What wheat conditioning research does the operative miller want?" The committee adopted this report and also discussed it with the attending members of the Northern Utilization Research & Development Division of the U.S. Department of Agriculture which requested this report originally. The literature survey of wheat conditioning is getting the finishing touches, it was reported.

T. Chris Mills
New Member . . .

The instrumentation sub-committee report, which was given by John Wingfield, Colorado Milling & Elevator Co., Denver, resolved that weights and scales are most important in the milling industry and in need of thorough investigation. What is the shrinkage of grain through storage? What are the common milling losses or gains? What is the flour shrinkage through bulk storage? Why is the weight of flour less out of a bin than what went into it? Why is the weight of bulk car flour different at loading and at arrival? The total percent of these shifts in material weights is greater than the percent of profit on gross sales. Are the weighing methods and the scales used adequate to control this serious situation? These were questions asked in the report.

The mill operating efficiency project report was presented by Alden Ackels, General Mills, Inc., San Francisco. Progress was reported on the survey of manpower requirements of the ideal 3,000 cwt. flour mill. This is expected to be completed by the next meeting.

On the mill modernization project, the sub-committee will undertake the planning of a 10-year modernization program for a 3,000 cwt. flour mill. The capital available figured at $55,000 a year, which is 10% more than the average rate the milling industry is spending currently on capital improvements, it was reported.

Among the representatives of manufacturers who appeared before the committee was G. E. Howkinson, Chicago, representing the pulverizing machinery division of Metals Disintegrating Co., Summit, N.J., who demonstrated a model of the new "Pulsaire" dust collector.

J. Gleason of General American Transportation Co., Chicago, reviewed methods his company applies to alleviate condensation in Airslide cars at loading and in transit. The committee is not satisfied with the current bulk railway car conditions and thinks that steps to improve loading, shipping and cleaning are necessary

(Turn to AOM COMMITTEE, page 34)

CAKE PRESENTED—Frank Gnaster, left, and Larry Lires, veteran independent retail bakers in Detroit, recently presented a special cake to G. Mennen Williams, governor of Michigan, during his visit to the model bakery at the Michigan State Fair.

Permanent Bakery Planned For Michigan State Fair

DETROIT — A model bakery is slated to become a permanent exhibit at the Michigan State Fair in Detroit, following its success at the 1957 exposition.

As an experiment, the Retail Bakers Association of Greater Detroit erected and operated a "typical neighborhood bakery" at the recent fair, which attracted more than 800,000 visitors.

The bakery proved such a popular attraction, Detroit area retail bakers asked that it be enlarged and located permanently in the center of the exposition grounds. With approval of fair officials, the more than 100 independent bakers and other members who comprise the Detroit association are planning to expand the bakery building to 20 by 60 ft. The association hopes to operate the bakery at automobile shows, circuses and other expositions, as well as at the fair.

The 1957 model bakery, featuring doughnuts and coffee cakes, sold more than 700 dozen in one day.

This year's 20-by-30 ft. wooden structure cost $1,100 for construction and exhibit fees. Proceeds were more than enough to cover costs and to wipe out a deficit incurred in the operation of a temporary exhibit at the 1956 fair.

The Michigan Consolidated Gas Co., Detroit, assisted in installing gas equipment at the exhibit, including a small Blodgett oven and three Fry-O-Lators. The gas company also donated the use of a water heater.

John Goward, who is a member of the Michigan consolidated industrial sales department staff, serves as secretary of the Retail Bakers Association of Greater Detroit.

He participated in the operation of the model bakery daily from 9 a.m. to 11:30 p.m. Supervising for the association were Walter Langlo, president, and George Verdonckt, Frank Gnaster and Larry Lires, all veteran independent retail bakers.

——BREAD IS THE STAFF OF LIFE——

BAKERY STORES SHOW SALES GAINS

WASHINGTON — The dollar volume of sales by bakery products' stores in the U.S. for July, 1957, increased 9% over July, 1956, but decreased 7% from June, 1957. Sales for the first seven months of 1957 increased 6% over the comparable period of 1956. Figures are from a monthly retail trade report published by the U.S. Department of Commerce.

Missouri Bakers Elect Officers For 1957-58

KANSAS CITY—Members of the Missouri Bakers Assn. recently elected Sam Pasternak, Cake Box Bakers, Kansas City, as president for 1957-58. Mr. Pasternak had been treasurer, and in his new office replaces David R. Newsam, Hammon Baking Co., Jefferson City, who has retired after serving as president for two terms. The meeting was held at Hotel Taneycomo, Rockaway Beach.

Several new officers, directors and committee members were also named for 1957-58. These included LeRoy Gillan, Gillan's Bakery, Moberly, as first vice president; Carl Muff, Muff's Bakery, Trenton, second vice president; William F. Ellerbrock, Ellerbrock Bakeries, St. Louis, treasurer; George H. Buford, Flour Mills of America, Kansas City, reappointed secretary; Mr. Newsam was named chairman of the board; Gus L. Bange, Favorite Pastry Shops, St. Louis, and Byron Welch, Holsum Bakers, Inc., Springfield, were named directors. Retiring directors are Curt J. Patterson, Jr., C. J. Patterson Co., Kansas City, and Earl Schmidt, Schmidt's Bake Shops, St. Louis.

As one of his first official acts, President Pasternak appointed several committee chairmen: James M. Doty, Doty Laboratories, North Kansas City, consultant; W. J. Kuckenbecker, Red Star Yeast & Products Co., Kansas City, entertainment; Carl Muff, Muff's Bakery, Trenton, group insurance; Harry Walch, Wichita Flour Mills Co., Sedalia, state fair; and Allen Lawrence, Colonial Baking Co., Springfield, label and sanitation.

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American Bakers Assn.

Baking Convention to Cover Gamut of Industry Progress

CHICAGO—Outstanding speakers, committee meetings, conferences and receptions will be added attractions of the American Bakers Assn.'s annual convention Oct. 19-23 at the Hotel Sherman.

Victor Riesel, labor columnist, will be the headlined speaker at the Oct. 21 general membership luncheon sponsored by the industrial relations committee of the ABA. Mr. Riesel, a veteran newspaperman, was blinded more than a year ago when a New York hoodlum threw acid in his eyes following his many exposures of communism and racketeering in labor unions. The title of his talk is "The Labor Front."

Other out-of-industry speakers include merchandising authorities, statesmen, political figures and a noted author and lecturer.

Social events of the five-day convention will be highlighted by the annual bakers' party at 8 p.m. Monday, Oct. 21, in the Sherman's grand ballroom. Several top-flight entertainment acts have been scheduled and dancing will be to the music of Henry Brandon and his 15-piece orchestra.

A chronological summary of activities other than general convention sessions and branch meetings follows:

Two pre-convention committee sessions have been scheduled. The industrial relations committee will meet at 9:30 a.m., Oct. 18, in the Jade Room, and the executive committee will have a 12 noon luncheon, Oct. 19 in the Holiday Room. The ABA board of governors will meet Sunday, Oct. 20, to conduct association business and elect officers for 1958.

The 1957 ABA Officers' Reception will be held at 5 p.m., Sunday, in the grand ballroom. Incumbent officers of the association and their wives will be in the receiving line to greet all delegates.

Members of the newly-formed ABA safety committee have been notified by Frank J. Wirken, Interstate Bakeries Corp., Kansas City, Mo., that they will meet at 2:30 p.m., Oct. 21, in the Venetian Room of the Morrison Hotel. The meeting will be held jointly with the food section of the National Safety Congress.

Harold M. Freund

Several bakers' meetings other than those sponsored by ABA have been scheduled before and during the convention. The baking industry sanitation standards committee will hold sessions Oct. 17, 18 and 19. The sanitarians will meet at 7 p.m. Oct. 17, in the hotel's Orchid Room. General meetings of the group are scheduled for 10 a.m. Oct. 18 and 19, in the Louis XVI Room, and the task committees will meet at the same time in the Gold Coast, Orchid, Holiday and Polo Rooms. The sanitation committee's board of directors will meet in the BISSC headquarters suite.

As usual, the Bakers Courtesy Club of Chicago will provide a messenger, information and delivery service to those attending the convention.

The Bakery Equipment Manufacturers Assn.'s board of directors will hold a meeting Oct. 20 at the association's headquarters suite in the Sherman. The BEMA's fall meeting reception will be held at 12 noon, Oct. 20, in the Ruby Room, to be followed a half-hour later by a luncheon and business session in the Gold Room.

The American Institute of Baking Alumni Assn. will hold its annual luncheon at 12:15 p.m., Oct. 21, in the Jade Room, and the annual meeting of members of the American Institute of Baking is scheduled for 3 p.m. the same day at the Institute Bldg., 400 E. Ontario St.

On Oct. 22, two meetings have been scheduled: The Allied Trades of the Baking Industry will have an 8 a.m. breakfast in the Bernard Shaw Room, and the 1961 Baking Industry Exposition Committee will meet in the Life Room at 10 a.m.

Two meetings have been scheduled for Oct. 23. The AIB membership committee breakfast will be held at 7:30 a.m. in the Life Room, and the Inter-Industry Bakery Package Committee breakfast is scheduled for 8 a.m. in the Gold Room.

The past, present and future of the baking industry, with emphasis on the future, will be reviewed, discussed and predicted at the general session Monday morning.

The general session will be opened by Roy Nafziger, Interstate Bakeries Corp., Kansas City, ABA board chairman. Mr. Nafziger will discuss the potential growth of the baking industry in a talk entitled "Long-Range Planning—Key to the Future."

As is customary at the first of the two general convention sessions, William E. Maier, general manager and treasurer of Maier's Bakery, Inc., Reading, Pa., will open the formal session by singing "The Lord's Prayer" and "The National Anthem."

Harold M. Freund, vice president and plant manager of the Freund Baking Co., St. Louis, president of the American Society of Bakery Engineers, will assess the present in a talk entitled "Why Wait 'Til Next Year?"

Mr. Freund is affiliated with one of the oldest family-operated bakeries in the nation. Last year the Freund executives were given a citation at the ABA Convention in recognition of 100 years of continuous operation of a bakery by members of the same family. The ASBE president built an experience in all types of bakeries after graduating from college and from the AIB baking school. He worked as a journeyman baker in wholesale, home service and retail bakeries from coast to coast. He was, at one time, the baker on a ship cruising to South America.

He has served on numerous community committees and was the first president of the St. Louis Bakery Production Club.

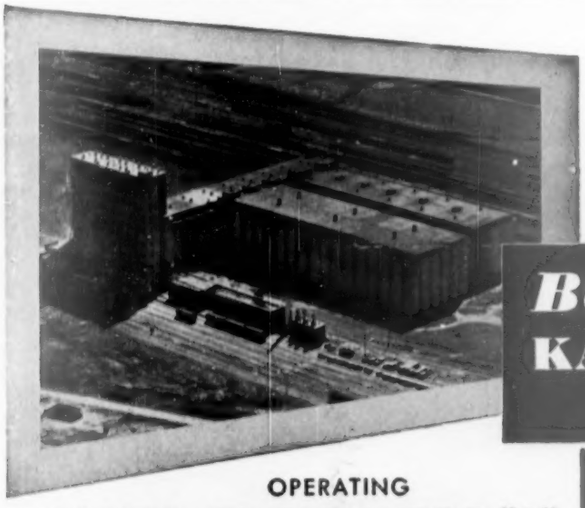
Inter-Industry Cooperation

The many advantages of inter-industry cooperation will be discussed by E. E. Kelley, Jr., Butter Krust Bakeries, Inc., Lakeland, Fla., ABA president. His topic will be "Long-Range Planning—Together."

"Second-guessing" will be the theme of a talk given by Dr. Carl S. Winters, author and lecturer, from Oak Park, Ill. He will talk about "Greatness Passing By." Dr. Winters is appearing on the ABA convention program for the second time. He addressed the convention in 1954, and members who heard him asked that he be invited again.

Allan Shivers, former governor of Texas, will highlight the program with a discussion of "The Conservative in Government—His Future."

Charles J. Schupp



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Lawrence W. Fasano

Mr. Shivers is now chairman of the board of Western Pipe Lines, Inc.

The American Institute of Baking will hold its annual meeting at 3 p.m. Monday, Oct. 21 at the Institute building, 400 East Ontario.

New Film

The general session Oct. 23 will feature one of the first public showings of "The Atom Comes to Town," a 29-min. sound-color film produced by the Chamber of Commerce of the U.S. with the cooperation of 32 industrial firms to help increase understanding of the use of the peacetime atom.

First speaker on the program will be Charles J. Schupp, Schupp's Bakery, Washington, D.C., president of the Associated Retail Bakers of America. The title of his address is "Planning Ahead For Retail Bakery Progress and Profits."

board of governors of ABA and is vice president of the Potomac States Bakers Assn.

Mr. Schupp will be followed by E. E. Kelley, Jr., ABA president, who will report on activities of the Bakers of America Program in the past year and will forecast expanded operations in the next ten years. The program has been in operation 10 years as of this time. A slide film report of all phases of the program will be presented.

Next on the Wednesday session will be the premier presentation of the new ABA film "Your Daily Bread," which tells the story of bread's nutrition, details about how bread is made in a wholesale bakery, and variety breads and their uses. In full color, on 16mm film with sound, it will be made available by ABA for showings by bakers and allied organizations to schools and consumer groups.

U.S. Senator Hubert H. Humphrey, Minnesota, will be a featured speaker at the Wednesday morning session. He will discuss the state of the nation—and the world—in his talk entitled "Where Are We Going?"

Pie Branch

New facts and factors in the pie business will be discussed and analyzed at a joint session of the ABA Wholesale Pie Branch and the National Association of Wholesale Pie Bakers Oct. 22 in the Jade Room of the Hotel Sherman.

Lawrence W. Fasano of the Fasano Pie Co., Chicago, chairman of the pie branch and president of the pie association, will be chairman of the day-long session.

"Every pie baker attending the meeting will hear something of direct interest to him," Mr. Fasano said. "I think it is one of the best, most diversified, programs we have ever had."

Two films will be shown by Stanley Ellis, Marathon Corp., Menasha, Wis. They are a color-sound film showing modern packaging of pies and cakes, and a hidden camera study of consumers buying pies in San Francisco, Cincinnati and Detroit.

F. W. Birkenhauer, chairman and president of the Wagner Baking Corp., Newark, N.J., will report as the pie bakers' representative on the ABA Board of Governors.

In previous years, speakers on the wholesale pie program have discussed the topic "What's Wrong with the Pie Business?" Harold Snyder, editor of Baking Industry magazine, this year will tell the bakers "What's RIGHT with the Pie Industry." Mr. Snyder, who has met with bakers in virtually every state, will bring the bakers a first-hand report of information he has obtained from pie bakers throughout the nation.

The branch session will include a panel and open forum discussion following a luncheon. Mr. Fasano will serve as moderator. Panel members will include Carl G. Denton, Farm Crest Bakeries, Inc., Detroit; R. J. Layman, Bowie Pies, Inc., Los Angeles, and Ernst H. Struckmann, Mrs. Smith's Pie Co., Pottstown, Pa.

Panel subjects will be: "What are the problems relative to the five-day delivery week in the pie industry?"; "How can we lower our selling costs?" and "How can you get your fair share of the frozen pie business?"

Also on the program will be a report on staphylococcus research, by Dr. Merlin S. Bergdoll, associate professor at the Food Research Institute, University of Chicago.

The meeting will end with election and installation of 1958 officers.

• • •

Bakery Package Group Announces October Meeting

CHICAGO — The Inter-Industry Bakery Package Committee will hold a breakfast meeting during the American Bakers Assn. convention here, it has been announced by Merrill Maughan, executive secretary.

The theme of the meeting will be "What's New in Bakery Packaging," with George Graf, Quality Bakers of America Cooperative, Inc., New York, chairman of the committee, presiding.

Highlight of the breakfast will be the presentation of the "Merchandising Statesman" award to this year's winner.

The meeting will be held in the Gold Room, No. 114, of the Hotel Sherman, at 8 a.m. Wednesday, Oct. 23.

SALES GAINS MADE BY BAKERY STORES

WASHINGTON — Dollar volume sales by bakery products' stores in the U.S. for the first seven months of 1957 amounted to $517 million, compared with only $487 million for the comparable period in 1956. Figures are from a monthly trade report issued by the U.S. Department of Commerce. Sales for July, 1957, totaled $71 million, compared with $65 million for July, 1956, and $76 million for June, 1957.

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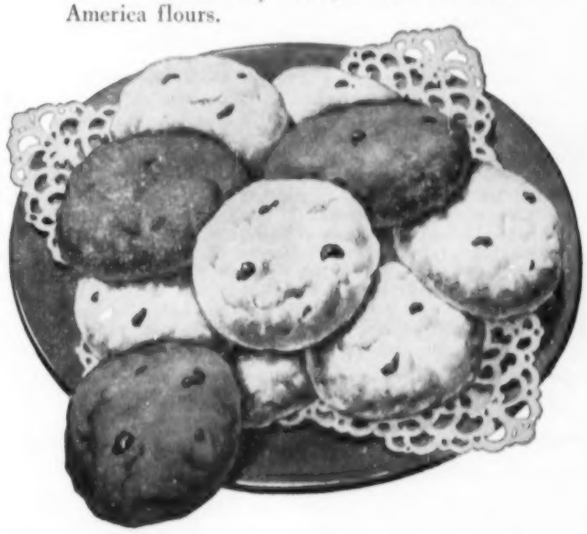

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Major Wheat Conditioning Problems: Current World Practices, Opinions

By Fred M. Atkinson
Atkinson Milling Co., Minneapolis

Fred M. Atkinson

A PAPER PRESENTED TO THE WHEAT UTILIZATION RESEARCH CONFERENCE AT PEORIA

THE objectives of wheat conditioning are obvious, clear cut and well understood by the vast majority of flour millers, mill machinery manufacturers and wheat research workers the world over. So there is no reason for reciting a list of objectives here, except to point out that conditions in various parts of the globe necessitate placing varying emphasis on each of the many objectives involved in wheat conditioning.

This infinite variation of conditions has naturally led to a complex series of answers which do not lend themselves easily to scientific investigation and resulting basic principles necessary for solving to best advantage the problems connected with each case where conditioning is required.

Current usage is largely the result of custom and experience, or just plain necessity, or lack of scientific knowledge. As you know, our aim is an increase in our scientific knowledge and the development of basic principles. This job is so complex and important that it requires, and is beginning to receive, the cooperation and attention it deserves. Its importance can be illustrated by the fact that there are numerous mills where the cost of housing, equipping and operating a conditioning system is not too far from being comparable to the mill proper. In addition, most millers maintain that conditioning is as important to final results as the mill itself.

The purpose of this presentation is to try and provide a brief picture of the current status and the problems faced in the realm of wheat conditioning in as much of the world as possible. I would like here to acknowledge, with real appreciation, the unusually generous help given me by millers in many parts of the world either through personal contact, correspondence, or both. Insofar as I am able, it will be a factual picture of the practices and opinions of millers today, along with samples of the theories behind those practices. Obviously, it cannot be more than an incomplete, shorthand sketch.

To me there appears to be a large degree of uniformity of opinion amongst millers today as to proper theoretical conditioning practices. The great majority of deviations seem to arise from special conditions or limitations over which they have little control. For instance, taking into account the phyiscal and economic limitations, millers with very few exceptions subscribe to the ideas that: Cold conditioning calls for at least 20 hours on harder wheats, temperature at the 1st break 70-80° F.; roughly similar milling results can be obtained with hot conditioning (steam, hot air or radiation) with ⅓ the time, or 10 hours; it is dangerous to use heat above 110-120° F. for more than a minute or two, and then only in conjunction with high moistures for gluten modification (on softer or extensible wheats); final damping up to ½% additional just ahead of 1st break is helpful in many circumstances, etc. Similar general agreements in opinion could be listed almost indefinitely.

Hot vs. Cold Process

In another instance, and in a negative way, this similarity of opinion shows up in a 1956 Association of Operative Millers survey of hot conditioning practices among North American millers who use hot conditioning. Ten milling companies replied to a questionnaire, and opinion was about evenly split as to the merits of hot conditioning vs. cold, but it was notable that those that were short of temper space (six hours average) were more favorably disposed towards hot conditioning than those with facilities for 20 hours or more. The questionnaire was worded so that adequate tempering space was to be assumed. The above instance is not intended as an appraisal of the relative value of hot vs. cold conditioning in North America, since the results of the survey are clouded by a number of factors, including a drastic increase in capacity by some of the mills without a corresponding increase in equipment or space. It is, however, typical of much of the information which is available on wheat conditioning today. Very little sound interpretation can be drawn from it.

Since the objective of this presentation is not to propound or prove anything, and is to provide the current status of wheat conditioning, I will try to illustrate the current practices of several countries, or areas, by reference to information supplied by competent millers in those particular areas, or countries. Comparisons of any relative merits of any particular systems or methods are not intended.

To get down to actual conditions, let us take up the U.S. first, confining ourselves to hard type wheats, either winter or spring. These seem to be handled more or less alike, with wheat proteins ranging between 13 and 14%, on the average. These normally are received by the mill at an average moisture of approximately 12%. Almost all are intended for baked goods of the bread type. Soft wheat we can consider separately and merely keep in mind the fact that family flours ordinarily are a cross between the two.

These hard wheats are relatively uniform and readily available, and since there is no sufficient economic excuse for trying to blend the soft wheats with the hard variety, no attempts are made to temper different types separately and then blend at the 1st break. In other words, U.S. mills have single tempering or conditioning systems which, considering the facts above, makes economic sense. With adequate proteins and the various bleaches and flour conditioning chemicals available, there is little attempt to alter the character or quality of the hard wheat flours by means of hot conditioning.

It is difficult to estimate the actual percentage of wheat of the hard variety which is washed prior to tempering or milling. The practice of washing is used fairly extensively, particularly where adequate and cheap cold water is available. The main purpose of washing as far as the U.S. is concerned is the removal of grit and the improvement in color of the finished flour, which is said to be slight. Its effect on ash content, of course, is good but rather minor. Probably amongst the reasons why washing is not used more extensively is that the control of moisture in the end product becomes more difficult, aside from the obvious added cost. I do not have available any figures which would demonstrate the degree of improvement obtained by washing as such.

U.S. millers, by a vast majority, employ cold tempering. In almost all cases the moisture is added, preferably in the form of a fine spray, and with adequate mixing time of 1 min. or more in a mixing conveyor. Occasionally, some mills have run into unusually dry wheat, and where more than 3 or 3½% must be added to the wheat, two or multiple stage water additions are made. Most mills are equipped with facilities for adding minor amounts of moisture up to ½% prior to the 1st break. This 2nd temper is used to damp the bran for the 1st break and to a minor extent to adjust the final moisture before milling. However, it is not used consistently, depending upon weather conditions, etc. The majority of mills put their wheat to rest in tempering bins after moistening, although some keep their wheat on the move during the tempering process, filling the bins as they are emptied. This usually occurs only where the bin space and the structure of the bins, as well as the necessity for changing mixes, permits. There does not seem to be any definite opinion as to whether wheat that is allowed to lie static or wheat tempered on the move is superior for milling purposes.

Tempering Time

With regard to tempering time, U.S. millers favor a minimum of 24 hours on the harder wheats. A few believe that extended periods beyond this are desirable, but it is granted by most that any real advantages in quality from longer periods of time would necessitate more moisture than desirable for milling and also somewhat higher temperatures. This would mean that drying would have to take place following the temper as well as cooling. Nearly everyone agrees that temperatures at the first break should fall in the range of 70-80° F. These temperatures are quite often exceeded during hot weather, with many claiming that the higher temperatures

WINS NATIONAL AWARD — The Minneapolis Grain Exchange was the recipient of a national and regional award of merit from the American Society of Association Executives at its recent convention in St. Louis. It was the second time the exchange has won the award for outstanding service to the industry it represents, as well as the American public. On hand to receive the award, presented by the Very Rev. Paul C. Reinert, president of St. Louis University, center, were Tom Moe, International Milling Co., chairman of the public relations committee of the grain exchange, right, and George Wilkens, secretary of the grain exchange, left.

cause a reduction in capacity and more difficult milling.

A handful of U.S. millers are using hot conditioning involving steam or radiators, but almost without exception most of these millers do not have adequate tempering space for cold conditioning. Their average tempering time is, perhaps, six hours. The millers who have used hot conditioning are of the opinion that they can put wheat in the same condition for milling in approximately ½ the time required by cold conditioning. U.S. milling opinion is very much divided as to the advantages of hot vs. cold. The dominant factor appears to be that proper hot conditioning and its control equipment is not only expensive to install but also costly to operate. The situation is also obscured by the heavy capacity delivered to each inch of American roller mill space. This, of course, is quite a different picture than exists with the roll loadings in European mills, where much more roll surface and other equipment is used per cwt. produced. The high relative capacity of the American type mills obviously produces economic savings along some lines, and no reliable figures seem to be available which would illustrate the benefits of increased quality, if any, which would be obtained in the U.S. by reducing capacity. There is even some evidence which tends to show that U.S. bakers prefer a flour which has been milled under high relative capacity conditions. This tends to decrease the need for adding malt, which is also helpful. In other sections of the world, of course, so much damp or sprouted wheat has to be used that American methods would be quite unsuitable.

It is generally agreed, not only in the U.S. but also in other countries, that the prolonged use of heat above 110-120° F. is harmful to the quality of the end product. There are exceptions, of course, where temper up to 160° has been used extensively to modify the gluten of excessively soft or extensible wheat, but in such cases moisture and temper are very carefully controlled with elaborate equipment.

With the above information on the conditioning of U.S. hard wheat, not very much more needs to be added with regard to practices on the conditioning in the U.S. of soft wheats, which are used primarily for cakes, crackers or cookies and sometimes blended with hard wheat flour to produce an all-purpose family flour. Soft wheats also are predominantly cold conditioned in the U.S. Tempering time usually is half that used on the harder types, with particular care being exercised not to allow the temperature of the grain to the 1st break rising any further above 70° F. than necessary. These wheats are generally milled at as low a moisture content as is consistent with producing satisfactory milling results. This, of course, tends to enhance the productive capacities of the soft wheat mill which, again, has its economic advantages. Again, I would like to emphasize the fact that U.S. soft wheats are not destined for the bread type of product and there is little incentive to try to alter their character by the use of heat.

To end up this section on the U.S., I am taking the liberty of quoting one of our leading millers, who, I believe, sums up very well the general feeling amongst millers in this country.

"I rather suspect that there is more to tempering wheat than simply adding moisture. There is some mellowing of endosperm which requires time and I feel sure that 24 hours is not enough time. But in our plant, like most other plants I have visited, we have expanded our capacity to such a degree that we no longer have tempering capacity for tempering more than 24 hours.

"I also suspect that the quality of flour can be improved by conditioning, but I feel sure that this would require both moisture and heat in excess of anything we are now doing. In other words, I think in conditioning, an excess of moisture must be added and then the excess withdrawn. Under such conditions improvement in the baking value of flour can be obtained."

Conditioning in England

Let us now take up the conditioning picture in England. Here the situation and conditions are radically different. Wheat is drawn from all parts of the world with preference usually going to Commonwealth nations. By regulation a considerable percentage, depending upon the type of flour to be manufactured, must be domestic. The percentages of Canadian, Argentine, European, U.S. and other wheats depend upon market conditions. Most mills are either single unit plants or are of relatively small capacity so that all wheats have to be processed upon the same unit. This fact has far reaching effects, especially in the field of wheat conditioning. If they were to condition their hard and soft wheats by the same method, the milling results would be disastrous. Hence, if the plant is large enough, there are separate conditioning systems for their general grades of wheat, usually three. In some cases the same condi-

(Turn to FRED M. ATKINSON, page 18)

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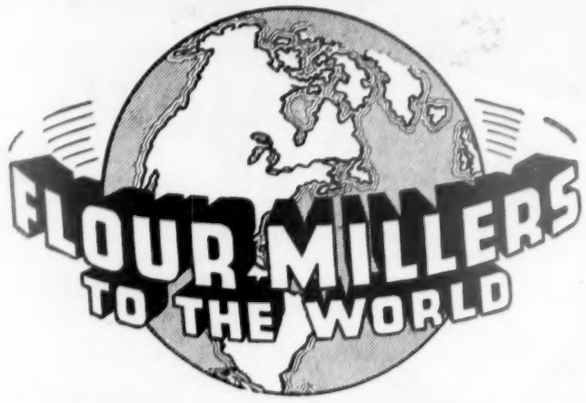

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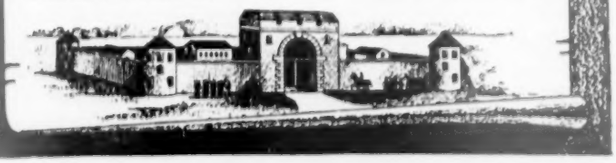

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Commodity Futures Market And the Speculator

By BERNARD P. CAREY
Chicago Board of Trade

A PAPER PRESENTED TO THE CHICAGO BOARD OF TRADE'S 10TH ANNUAL COMMODITY MARKETING SYMPOSIUM

This discourse will be essentially a "once over lightly" of what seems to me to be the highlights of the speculator's role in the commodity futures market.

First of all, why and how did trading in futures contracts in Chicago originate? What particular set of circumstances combined to make a demand for this ever so specialized system of marketing? A brief look at the historical period of approximately 100 years ago will, I think, be helpful in answering these questions. It was this era that witnessed the invention of such pieces of important farm machinery as the mower, the reaper and the thresher and made of this vast and fertile midwest area the world's largest grain producing area.

Developments in the communication and transportation fields—such as the invention of the telegraph in 1844, the opening of the Erie Canal, the Welland Canal around Niagara Falls, the Illinois-Michigan Canal connecting the Mississippi River to the Great Lakes and the coming of the railroads to the great Middle West provided the necessary means of bringing and keeping the latter in close commercial contact with the rest of the world and of moving the grain out of the producing area of the West to the consuming areas of the East and abroad. Chicago, with its strategic location as the hub of the water and railroad systems, was the natural location for the grain market, and in 1848 the Chicago Board of Trade was formed to establish a market place for the handling of this grain.

Now, as to the evolution of futures trading, while we know that grain is harvested in a relatively short period of time, it must last until the next harvest. Dealers in grain would perforce be compelled to accumulate large stocks of grain at harvest time even though they would be able to sell only a small portion of it at that time and would be at the mercy of a possible decline in the price on the balance of their grain. What was more natural, then, than for dealers to hunt around for somebody who wanted grain for delivery sometime in the future? Thus, contracts were made, for example, in February for corn "to arrive in May," and these were first known as 'to arrive" contracts. These "to arrive" or "time contracts" as they were sometimes called, were the forerunners of the futures contract of today.

Now, it isn't hard to see the value of the buyer of a "to arrive" or futures contract to the dealer in the cash commodity. Projecting this picture further, we can see that with the newly found assurance of being able to market his grain ahead, the dealer is not only able to pay the farmer more for his grain but can also encourage him to grow a larger crop because of his expanded market facilities. Truly then, it can be said the speculator, by making a futures market possible, has played an important part in the development of the agricultural economy of the nation.

Some Benefits

Some of the benefits of speculation in the marketing of farm products are the following:

1. It provides hedging facilities; that is, insurance which minimizes the risk of loss through adverse price changes and thereby creates a market of maximum efficiency. Through hedging, the middle man's cost is held to a minimum with the return to the purchaser high while net cost to the consumer is low. It should be said here that a futures market operates more efficiently, that is, it absorbs hedges most readily, only if it is liquid, which can only be true if speculation is present in sufficient volume. If futures markets are not permitted to operate freely, their capacity to serve the farmer and consumer efficiently is seriously hampered.

2. The credit extended to country and terminal elevator by banks—so necessary to the financing of the movement of the grain crop—hinges directly on hedging and through the latter, on speculation. The risk in ownership of grain being what it is, it would not be possible to borrow money on unhedged grain at anything near its market value.

3. As a result of speculative activity in the futures markets, a year-around cash market for commodities is made possible. This has literally multiplied buyers and sellers to the point at which commodities are made available to producers and consumers at all times—a fact which has a great bearing on smoothing out price fluctuations during the year.

Basically, speculators can be di-

John R. Hale

NEW APPOINTMENT — John R. Hale, manager of the Chase Bag Company branch in Minneapolis since 1937, has been appointed Midwestern regional sales director for the firm, it was announced by W. N. Brock, vice president and general sales manager. Included in the Midwestern region are the Minneapolis, Kansas City, St. Louis, Chicago and Milwaukee offices of Chase Bag. Mr. Hale will make his headquarters in Minneapolis.

vided into three categories—scalpers, position traders (who in the trade jargon are known as speculators), and spreaders. This is, however, not to say that a scalper can not be a speculator, nor a position trader can not scalp, nor that a spreader cannot perform also as a scalper or position trader on occasion. It is merely a convenient method of classification for the sake of explanation. Indeed, during the course of a trader's career he most probably will try each method, although after his discovery of what he can do best, he probably will stick to one way of trading more or less to the exclusion of the others.

Scalper Defined

A scalper might be defined as the futures market's shortest term operator. He is interested only in the market of now—not half an hour hence—not at the close—nor tomorrow. He will change from a short to a long position, or from a long to a short position inside of a very short period of time. If the market is active enough, he may do this two or three times in a single minute. His profits will be small and his losses will be proportionately small. His success will depend more on the frequency of his profitable trades rather than on the size of them since both his profits and his losses, generally speaking, should amount to approximately the same money-wise.

By this, I do not mean that the money involved in scalping is small—it can be relatively small, or it can be quite large, depending on the volume of his trading, but rather do I mean that by and large, the scalper deals in price changes that are small—⅛¢, ¼¢ or ½¢. As to the scalper's economic service to the market, his value lies in furnishing liquidity. Of the three general types of speculators, it is he who probably furnishes the most liquidity to the market since by his very modus operandi, he is interested in the market every second it is open, ready to buy or sell at any moment depending on his judgment at that particular time.

A position trader differs from a scalper in a number of ways, chief of which, in my opinion, is that he will let his profits run much further than a scalper, and by the same token won't be nearly as quick in taking a loss. He will not trade nearly as frequently as a scalper but usually will study the action of the market for some time, and when he figures it is in a position to go one way or another, will act accordingly. Many position traders gauge their activities by means of charts, while others rely more on their own interpretation of the news plus a feel of the market, which they have developed through experience (often bitter) over a period of years. The chart player, for example, will many times ignore the news and will buy or sell according to the pattern developing on his chart.

An important consideration in the matter of position trading is the length of time which the trader wishes to retain his position in the market. A weekly chart player, for example, will most certainly have different buy and sell signals than will a chartist who is attempting to achieve a long term capital gain. Likewise, a trader who bases his moves on news of a more or less permanent character won't change his mind, even though the news of the moment might be contrary to his position. For example, if he were long on soybeans on the basis of a severe drouth condition and it rained in the soybean belt, he would not sell out merely on the basis of a single rain, because, although the market, in all probability, would go against him, he would not figure that the crop ipso facto was out of danger.

Methods of Spreaders

Finally, there are some traders who simultaneously offset their purchases with sales of a different nature and vice versa. We call these people spreaders. A trader of this type would buy and sell like amounts, for instance, of the same grain involving different delivery months. He will, for example, buy 10,000 bu. July corn and sell a similar quantity of September corn. Or he may be an inter-commodity spreader, like being long November beans and short December wheat. Again, he may spread the raw material against the end product as in the case of soybeans vs. soybean oil and/or soybean meal. In each instance, however, his net position will be zero, or, in other words, the quantity he has bought equals the quantity he has sold.

How, you may ask, does the fellow hope to make money if his net position is zero at all times? Admittedly, it is usually a much slower process than being long or short outright and is usually less risky, but in this business there does not seem to be any law universally applicable. Indeed, three years ago at this time, within a period of 45 days, September soybeans went from 22¢ over November soybeans to 54¢ over and then into but 9¢ over. There was more activity on a spread basis than in being long or short. I think we can say, however, that the spreader attempts to make his profit by predicting relative strength of one commodity or one delivery month over another, or relative weakness of one commodity or delivery month as compared to another.

Problem of Success

Finally we come to the problem of achieving success in speculating. A successful speculator, in my opinion, must (1) be a keen judge of the market, and (2) have a proper trading technique. To have one without the other is not enough. It is easy to understand how a speculator could fail if he were not a good judge of the market, but strangely enough it is just as important for him to use the proper trading method if he desires to cash in on his good market sense.

Of the two marks of the successful speculator, the first mentioned—judgment of the market—is, from an intellectual standpoint, the more difficult to achieve. Successful market analysis comes basically from a tying in of price with supply and demand conditions. Put in its simple terms, for example, I think that the price of $2.50 for November soybeans today is (1) too low, (2) too high, or (3) about right for the supply and demand conditions currently prevailing. And the only way that I know of that this market feeling can be developed is by experience—months and years of close observation and study and living with the behavior of these conditions under a variable superabundance of price making influences.

Objectively treated, a proper trading technique consists of a set of rules, neither set as to number nor necessarily applying to everybody, which when summed up means "limit your losses and let your profits run." Some very interesting surveys proving this point have been made by various commission houses. One such recent survey cited cases of 5 traders who speculated successfully from 67 to 93% of the time, yet, because they didn't follow this principle, lost anywhere from $20 to $19,000. A truly amazing situation and the other side of the picture is just as

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surprising. The second group of five traders was successful in but 30 to 44% of their trades but, because they had taken quick losses and let their profits run, they made amounts ranging from $500 to $16,000. That, to me, emphasizes the importance and necessity of proper trading technique. Some of the rules which I have found helpful in obtaining this desired result are the following:

1. Don't overtrade, or don't trade in amounts which overburden your financial situation. There are two bad features about overtrading (a) you will tend to trade money instead of the market and (b) if you sustain a loss (and you usually do in this situation) it could reduce substantially or even take away entirely your trading capital, thus making it impossible for you to recoup later.
2. Don't buck the trend of the market. Always keep in mind that the market is right—not your opinion. It will move not because of you, nor despite you, but when it is ready and not before. So if you can't agree with the market and it is going against you, the best thing for you to do is "even up" and wait for a time when it confirms your ideas.
3. When you buy or sell grain futures, make up your mind at what point you will get out if the market goes against you and also at what point you will take your profit, providing that the same set of conditions exists as when you entered the market.
4. Add to your line only when the trade shows a profit in decreasing amounts.
5. Organize yourself mentally for sudden and rather drastic failures or successes. A reversal of fortune will obviously tend to jolt one to his senses quickly, but it is just as necessary to gird yourself for success which, strangely enough, is oftentimes more difficult to handle than failure.

I mentioned that from an intellectual standpoint market judgment was more difficult to attain. Surely, however, from a moral basis, the discipline which is so necessary for achieving proper trading technique is a tortuous process demanding of the speculator a lifelong and rigid obedience without which he cannot long survive. From this discipline comes the necessary courage and patience and humility and perseverance on which the speculator has to rely to pull himself over the innumerable and, at times, seemingly unsurmountable obstacles in his path. Perhaps it seems a bit out of place to pose these qualities of character as essential for business success, but after nearly 20 years of experience, this is my firm conviction.

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FRED M. ATKINSON

(Continued from page 15)

tioning system would handle different wheats, but with different moisture and temperature settings. After separate conditioning the wheats are put to rest and tempered separately for varying lengths of time, depending on the grade of wheat. Then these are blended in the desired percentages prior to the 1st break, usually a very short length of time before, and in some cases, a few hours prior to milling. The practice of 2nd tempering, or final damping, is very often used.

To retrace our steps a bit, their domestic wheat is normally received by truck, averaging perhaps 9% in protein and, depending upon weather conditions, up to 25% in moisture. This being the case, British mills are equipped with dryers to reduce the moisture for safe storage down to 14 or 14.50%. On the other hand, wheat that is received from abroad is often relatively low in moisture. It is common practice to raise the moisture of this wheat as received, or a few days prior to blending into mixes, to the same figure—14 or 14.50.

This points up one noticeable feature of British conditioning practices. Hot conditioning is almost universally used and accepted as an important aid, or necessity, to milling. Normally, the wheats are divided into three classes for separate conditioning—hard, medium and soft. The hard class would include Manitoba wheat and U.S. springs; the medium group would include hard winters and plates, the soft would include Australian, European, red winters and domestic wheat. Somewhat contrary to U.S. practices, less emphasis is placed upon ash and protein, and a good deal of emphasis, which is also the same in this country, upon color and baking qualities. Extraction, as I believe most of you know, is of extreme importance to them, reaching for a maximum, provided color and baking qualities are satisfactory to their trade. This matter of extraction, of course, with them has been a continuing matter of government regulation. As a result of the above, it is most desirable to obtain optimum results from the wheats that are available to them. This, in turn, is good cause for retaining extended roll surfaces and plenty of milling equipment to obtain best milling results. Since the use of chemical additives for bleaching and flour treatment is permitted, their conditioning system is primarily designed with the object of providing good milling wheat, not alteration of the resulting flour. Three methods of hot conditioning are used: Steam, radiator and hot air, or some combination thereof. As a result of pre-tempering or drying practices, their wheats arrive at the conditioners or washers (which, by the way, are used almost 100%) at very stable moisture contents. This is considered a must, so that uniform results can be obtained by washing or conditioning. The lack of this uniformity in moisture content before conditioning may be one of the reasons why conditioning has not been readily accepted in the U.S.

The aim of the conditioning is to bring each of the three groups to a uniform degree of hardness and mellowness by the time the various wheats go on the mill. In order to attain this objective the hard groups are usually conditioned an hour to an hour and a half at a moisture of approximately 17% to 18%. The medium group at a moisture content of approximately 16%, and the soft wheats at approximately 15%. Typical temperatures at the conditioner would be an average of 110° F. more or less for all varieties. However, there is some variation in this respect, with soft wheats sometimes receiving additional heat, which would have a beneficial effect upon flour performance.

Immediately following the conditioning, the wheats are cooled and dried to the moisture desired on the mill, running sometimes to 17% on hard wheats down to 14% on the softer varieties. Temperature at the 1st break is usually intended to be between 70-75° F. Some experimentation has been done, heating wheat just prior to the 1st break to 100° F. or more, but reported experience with these experiments is conflicting.

In England millers agree that the use of more than 110-120° F., except for brief periods, is to be used with caution either drying or conditioning. Also, if more than 2 to 3% of moisture has to be added, it should be done in more than one stage.

With regard to tempering or conditioning times, a rest of 24 hours more or less is desired by English millers, regardless of conditioning, for optimum milling results. The longer times are for the hard and the shorter times for the soft. Most of the wheat is put to rest, and again there is no definite opinion as to the advantage of keeping wheat on the move during conditioning. Moisture and temperature control typically receive a great deal of attention, which is natural, considering the hot conditioning methods in use.

Australian Procedures

Let us now take up the wheat conditioning situation in Australia, which has a number of interesting aspects. Since Australia is a wheat exporting area, Australians naturally use their own wheat exclusively in their plants. This wheat is predominantly of the soft white variety, ranging from 9-11% protein and perhaps 10% moisture. It is normally shipped in bags, and during the course of a season the moisture varies considerably, since during the rainy seasons the wheat may pick up as much as 2 or 3% additional. They do have some hard red wheat which is grown in the more northerly sections of the wheat belt. This is blended to improve the quality of their bakery flours. However, this is a rather small percentage of the total.

As a background for Australian wheat conditioning practices it should be noted that, due to changes in crops and export conditions, Australian practices have been modified from time to time. For example, the washing of wheat which was formerly carried out is no longer practiced in the majority of Australian mills. Their methods are influenced by the shortage of capital and the relatively small size of the mills. According to one Australian miller, this has resulted in conditioning methods which can be characterized as basic and without refinement.

Due to the size of the plants, the wheat conditioning systems are single, and some trouble is experienced because of the necessity for mixing their small quantity of hard wheat with the soft before conditioning. The moisture in their flour has varied a good deal from year to year because of export requirements. Flour has been produced up to 15% in moisture

The Northwestern MILLER
MILLING PRODUCTION SECTION

British View:

Development in Mechanization

By Philip Lea

Mr. Lea presented his views on bulk handling and mechanization in a paper at a discussion meeting session of the 1957 convention of Britain's National Association of Corn and Agricultural Merchants, Ltd., at Eastbourne. Mr. Lea is the association's consultant on machinery and plant installation, and his paper appeared originally on NACAM's publication, the Agricultural Merchant. He is a director of the Lea group of breakfast food, feed and mineral manufacturing companies in England.

Philip Lea

THE first point I want to emphasize is that bulk handling is simply a problem of mechanical handling allied to time and motion study. Automation is having the right thing in the right place at the right time without the use of human effort. I do not intend to look back into the historical past, but rather to give to the best of my ability an account of present-day developments and my opinion on possible future trends.

Mechanical handling is nothing new. An early type of chain conveyor was mentioned in Chinese literature as far back as 1145 A.D. What is astonishing is that progress has been so slow in this field. Today we all know that increased productivity means a higher standard of living. Greatly increased productivity depends on mechanical handling from start to finish, plus automatic devices to link the various stages of production. The first stage is with us now, the second is coming up fast. It is agreed that automatic controls or automation give increased productivity. I maintain that these automatic controls are also necessary for quality of production because the yardstick of quality is the maintenance of even standards.

The mechanization of loading, unloading and warehousing operations in grain processing plants offers greater opportunity for increasing profit and efficiency than any other phase of milling and grain handling operations. In the U.K. it is probably true that the trend towards making processing automatic has already outstripped the handling of raw materials and finished products and it will continue to do so.

Vast improvements, however, are still needed in loading and warehouse techniques. Hard earnings by efficient processing may well be lost by inefficient intake, delivery and internal warehousing operations. I wonder how many of us have had our tempers frayed by straightening accounts caused by receiving consignments that are loaded short, or overweight. Automatic controls are available. For peace of mind in a large mill, they are essential.

Object of Bulk Handling

The object of bulk handling is the handling of material from producer to consumer with the least amount of human effort. There are three stages to be considered: first, handling of raw materials; second, processing of these materials; third, delivery of the finished product.

Take raw materials first. In the U.K. only about 60% of the raw materials are produced at home, the rest are imported—grain in bulk, oilseed residues, animal proteins, and various offals in sacks. These latter are the finished products from other industries — from oil crushing and from flour milling.

At home, the use of the combine harvester is increasing year by year. This has meant a great saving in labor, the greatest saving obviously occurring when the combine discharges grain into a tank, which in turn discharges to a tipper wagon for transport to the drying, cleaning and storage plant. Although less human effort has to be used with the combine, it does require a greater degree of skill to maintain and operate and, most important of all, to gather the grain in the proper condition.

Cleaning operations are most important, especially when the grain is to be stored in bulk, because all green leaf must be removed. So far most of the movement apart from the actual transportation has been done by gravity. As soon as it arrives at the silo process handling begins. Generally this takes place in small installations by pneumatic blower or bucket elevators, screw, drag link, band or jog conveyors, together with simple cleaning machines, dryers, and flat-bottomed bins. From this you will see that the whole operation can be carried out by three or four men suit-

(Turn to **PHILIP LEA**, page 18a)

DISCUSSION OF DEVELOPMENT IN MECHANIZATION

AFTER Mr. Lea presented his paper on the development of mechanization, he answered questions from members of the National Association of Corn and Agricultural Merchants, Ltd. Here is a summary of that question and answer period:

J. E. Roper, Hasler & Co., Ltd., raised the first of a series of questions which were put to Mr. Lea on the bulk handling of feed. He wanted to know what effect bulk handling had on the feed—and especially on its texture.

Mr. Lea replied that there was some separation in cases like coarse dairy rations. It was possible, he thought, that there would be a change to a system where the compounder ground his materials after mixing them, rather than mixing them before grinding.

Mr. Roper followed this with a supplementary question on how much condensation there was in feed bins stored in the open on the farm. Mr. Lea said that there was always a possibility of condensation and it meant that the meals—and especially the cubes—had to be in sufficiently good condition to take care of the condensation. One of the advantages of plywood bins was that, unlike steel bins, there was not a great deal of condensation.

G. Lockhart, E. W. Nickerson and Sons, Ltd., asked if there was any information on the effect of pneumatic handling systems—both high and low—on the germination of seed grain. In his reply, Mr. Lea put it that pneumatic handling of seed grain was rather dangerous. It might be possible to get away with it, but using such systems "was asking for trouble."

Another question covered the saving in cost where bulk handling was adopted. Here queries were raised about the validity of the argument that there could be a saving of $3.50 a ton to the farmer. One speaker put the real saving as low as $1.40 a ton, after taking into account the value of the sacks and the amortization of capital invested in bins. Mr. Lea's answer was that, for the merchant

(Turn to **MECHANIZATION DISCUSSION**, page 22a)

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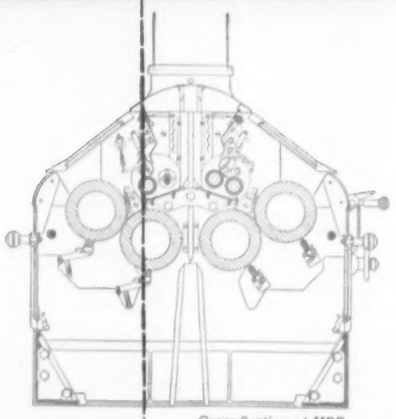

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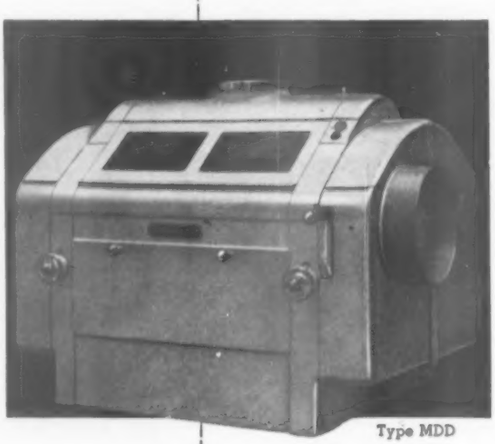

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A REVIEW OF THE DEVELOPMENTS IN BREAD MANUFACTURE

By ERIC E. BOND

Director, Bread Research Institute of Australia

EDITOR'S NOTE: Mr. Bond presented this report as an address to the Institute of Food Technologists meeting at Lorne, Victoria.

WHILE breadmaking is without doubt the most ancient of the food industries, having a history going back some 5,000 years, it has not undergone any spectacular development until this present century and more particularly the last 20 years.

Basically, bread has always been produced by making crushed grain into a dough with water and fermenting it with yeast in one form or another. What might be termed the conventional method of breadmaking consists of:

(a) Mixing the ingredients and forming the dough; (b) fermentation; (c) dividing; (d) shaping or molding individual dough pieces; (e) further fermentation; (f) baking.

Later I will deal with one very radical departure from this system.

Doughmaking Methods

I should explain that there are two methods of making a dough along conventional lines, namely,

(a) The straight dough process.

(b) The sponge dough process.

The straight dough, as its name implies, consists of mixing together at one time all the ingredients and proceeding with the fermentation and handling of the dough.

In the sponge dough process, a portion of the flour is made into a rather slack dough or sponge with water and other ingredients and, after the sponge has fermented for a period of time, the remainder of the flour is added and mixed into a dough of normal consistency which is then fermented and handled in the same way as the straight dough.

Straight doughs are universally made in Australia, while sponge doughs are universal in the U.S. In the U.K. and Europe both sponge and straight doughs are made.

From the earliest times bakers have recognized that good bread is dependent upon correct fermentation of the dough and for this reason the method of leavening or fermentation has always been one aspect subject to experiment and change.

In the first place old, or sour, dough was used and still is today by many bakers in Europe and even some in Australia who make the Continental type of loaf. A refinement of the sour dough process was the use of barms or crude ferments. Last century many bakers found they could produce good bread more conveniently by using distillers' yeast. From this stage we have had the rapid growth of the compressed yeast industry, producing the highly standardized product which is universally used by bakers today.

Compressed yeast has certain disadvantages with regard to storage. To overcome quality problems connected with the storage and transport of wet compressed yeast, a vital dry yeast was successfully produced in Australia during the war. Such a yeast has a definite value, not only during times of emergency, but also in a country such as Australia where long distances always constitute difficulties.

In the U.S. at the present time a number of large bakeries are experimenting with dry yeast but, so far, it has been found to have certain distinct limitations, being difficult to get into suspension and having critical temperature requirements. A dough made with this yeast must be finished at a temperature of 100° F. compared with approximately 80° F. for dough made with wet compressed yeast. However, I have no doubt that in the future yeast in a dry, stable and easily usable form will be widely used in breadmaking.

Without a close control over the fermentation process, made possible with the advent of compressed yeast, the spectacular changes which have occurred in the baking industry during recent years would not have been possible. These changes have been concerned primarily with the development of large bread factories handling as much as 500-1,000 tons of flour a week and the consequent complete or partial mechanization of the breadmaking process; they have been the natural outcome of the growth of large centers of population and improved transport and have been most pronounced in the U.S. At the present time, however, equally spectacular developments are occurring in the Australian industry.

Perhaps trends in the baking industry overseas can best be considered under four main headings: Formulation, Automation, New Process and Merchandising.

Formulation

The type of bread which is made is dependent to a large extent upon formulation, and generally can be grouped into one of two broad classes:

(a) That made from what might be termed a lean formula, i.e., with a minimum of additional ingredients apart from flour, water, salt and yeast; and

(b) An enriched loaf containing significant amounts of sugar, fat and milk.

The former loaf is common to Australia, the U.K. and Europe, while the highly enriched loaf is general in the U.S. and Canada. The American influence on bread can also be seen in Asian countries such as Japan and the Philippines, while in Singapore and Ceylon the Australian type is made. The type of loaf which is produced in any place can possibly be related not only to the standard of living of the bread eaters—it is often and wrongly reasoned that those with the higher standard of living eat the richer bread—but also to merchandising methods, a factor with which we will deal later.

The following is a comparison of Australian and American bread formulae:

Australian Standard

Salt	2% flour wgt.
Yeast	2% flour wgt.
Milk	2% flour wgt.

Australian Enriched

Salt	2% flour wgt.
Yeast	2% flour wgt.
Milk	2% flour wgt.
Sugar	2% flour wgt.
Fat	2% flour wgt.

American Standard

Yeast	1-2% flour wgt.
Milk	6% flour wgt.
Sugar	6% flour wgt.
Fat	6% flour wgt.

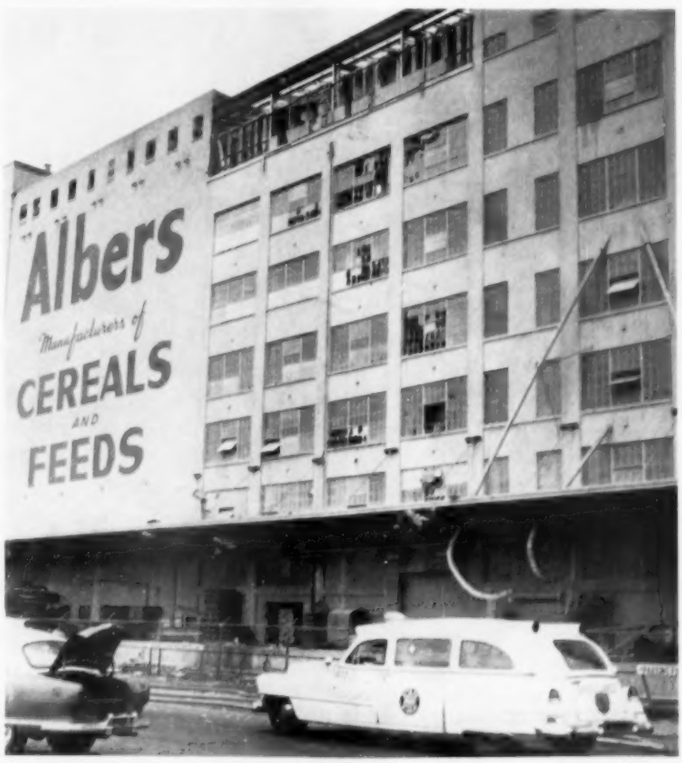
Chemical Additives

Australia is today in line with overseas practices with regard to the use of chemical additives in bread, most countries permitting the use of chlorine and chlorine dioxide as bleaching and improving agents and potassium bromate as an oxidizing agent. Additives not permitted in Australia but generally allowed overseas are ammonium persulphate, calcium peroxide and sodium and calcium propionates.

As we all know, the use of chemicals in foodstuffs is a highly contentious subject and the food manufacturer is always open to what is often ill-formed criticism. Bread is probably subject to closer scrutiny than most foods and the baker has to be prepared at all times to adapt his processes to suit the health authorities. Only recently in the U.K. and the U.S. the bleaching of flour with agene (nitrogen trichloride) had to be abandoned after many years use. The most recent move against the use of chemicals in foodstuffs has occurred in Western Germany where, as from April of this year, the chemical treatment of flour has been prohibited and the use of potassium bromate as an oxidizing agent in the dough is only permitted until the end of this year.

The Batter Process

With most flours some oxidation of the dough is essential in order to produce good bread. Efforts to achieve satisfactory results under present day conditions without oxidation have only been partly successful. Following the discontinuance of agene bleaching in the U.K. and, at that time, the threatened ban of additives in Germany, a new process making use of unbleached flour was developed. Known as the batter process it substitutes oxidation through chemicals by the mechanical incorporation of oxygen in the dough. Half of the untreated, unbleached flour is whipped with water at a very high speed. During this whipping the oxygen, which is incorporated in the



ALBERS PLANT DAMAGED—Some evidence of the damage caused by the explosion and flash fire which occurred Sept. 16 at the Albers Milling Company's plant at Oakland, Cal., can be seen in the above picture. The explosion occurred on the third floor of the feed mill section of the plant. Most of the damage was done in the feed mill area but some loss was sustained in the cereal manufacturing and warehouse sections. Eighteen employees were injured by the blast.

batter, acts as an oxidizing agent to bleach and improve the other half of the flour to be used in making the dough. The batter process is in operation in several bakeries in the U.K. and the results achieved are reported to be quite good. However, it does not completely remove the need for chemical improvers.

There is no doubt that the period in which we are living today can rightly be called the automation era and probably in few industries has the impact of automation been felt to such an extent as the baking industry where automatic devices have replaced age-old trade practices and craftsmanship. This trend towards complete mechanization is general in the baking industry throughout the world.

Bulk Handling

Perhaps one of the most notable advances in the large bakeries on the American continent is the bulk delivery and storage of flour. Bulk handling is well established in American and to a limited but growing extent in the larger British biscuit and breadmaking factories. Many of the larger bakeries in the U.K. are preparing for bulk handling and we might expect similar moves in the not too distant future in Australia.

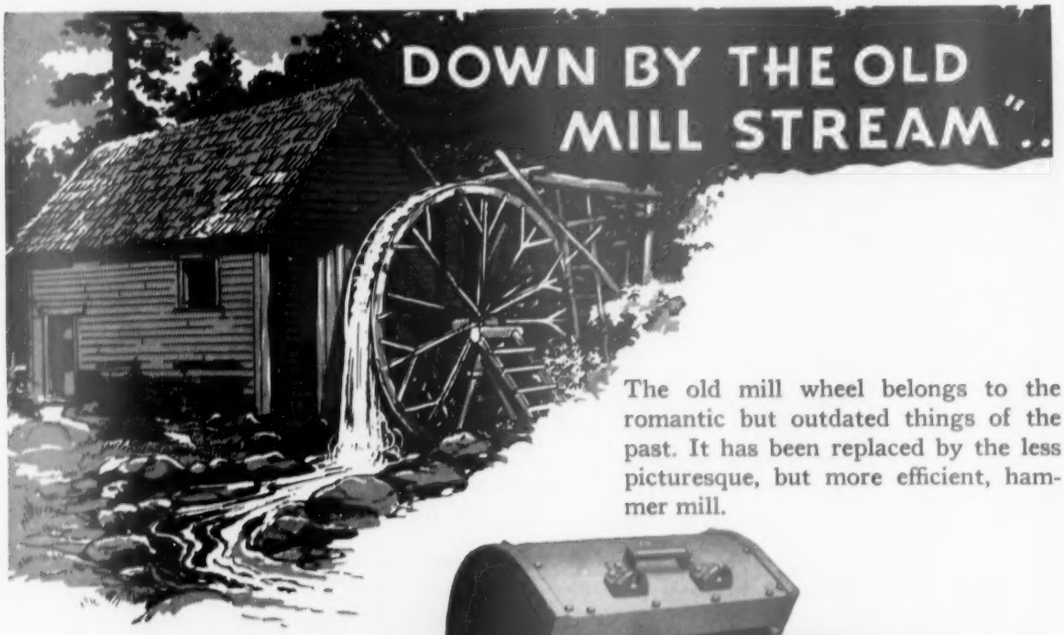
In this country we have always been rather lax in the handling of flour even in bag form. The 150-lb. jute sacks used here are to say the least clumsy and lacking from the sanitation point of view. In America for some years now all flour has been handled in either multi-wall paper or calico bags.

I visited several bakeries which were in the process of installing bulk storage, involving pneumatic intake and a number of steel bins with approximately 25-ton storage capacity. There was another interesting and less expensive method of bulk handling in operation in the U.S. This involved the delivery and handling of flour in large aluminum or fiberboard containers called totes, having a capacity of one ton. Bakeries often run their own trucks and send totes to take delivery of flour whenever required. The totes are handled by mechanical devices which elevate and tip the flour into storage bins. A Los Angeles bakery was using totes made of fiber-board, each containing about 2,000 lb. of flour. The totes were reinforced by removable wooden slats and after the totes have been emptied they could be folded to take up very little space.

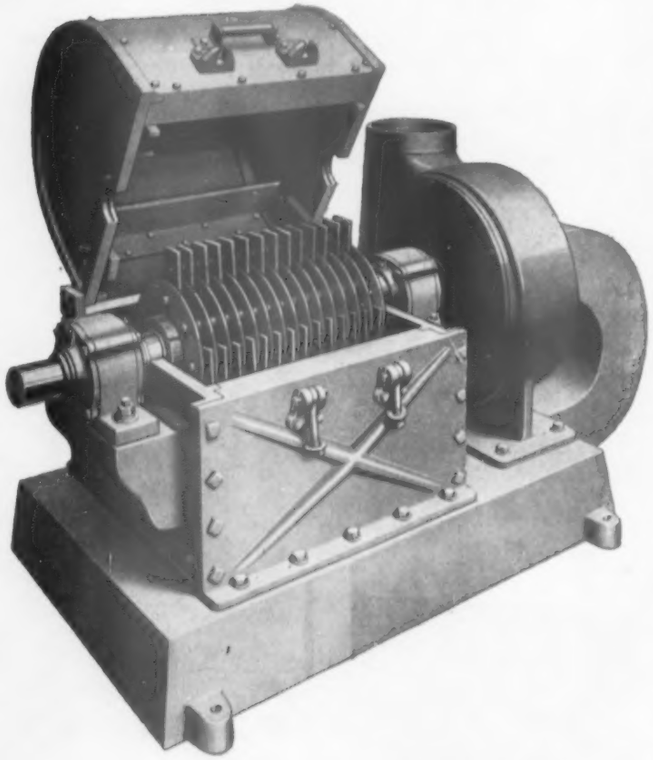
From the doughmaking stage onwards the baking operation in many American bakeries is largely automatic and is carried out with a minimum of labor, most of which is used in the making and handling of the bulk dough. After the bulk fermentation and dividing of the dough the processes of tinning the dough, lidding the tins, proving, loading and unloading the oven, depanning or detinning the baked bread, cooling, slicing and wrapping are all carried out automatically.

The production of bread under conditions such as these does, of course, require a high degree of standardization of both methods and materials. In this regard American bakeries are in advance of those in other parts of the world. Strict specifications are laid down for all ingredients and the larger bakeries are equipped with control laboratories to keep a constant check on the quality of raw materials and the finished product. The emphasis on quality standards is also reflected in flour mills and other suppliers of bakery products where every effort is made to satisfy customers on a highly competitive market.

One would expect automation to lead to a high degree of standardization of bread types and this is the



The old mill wheel belongs to the romantic but outdated things of the past. It has been replaced by the less picturesque, but more efficient, hammer mill.



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Charles A. Rowe

SALES MANAGER — Charles A. Rowe was recently appointed manager of sales of the Merchen Feeder department of Wallace & Tiernan Inc. He will have his headquarters at the main plant in Belleville, N.J. In his new position Mr. Rowe will supervise the sales and service of Merchen Weigh-Belt type feeders and meters. This equipment is used for accurate automatic batching and continuous blending of dry materials in the chemical, food and animal feed fields. Mr. Rowe has been associated with Wallace & Tiernan Inc. for the past 18 years.

"Ya' sure this conveyor is s'posed to work like this?"

case in the U.S. where most of the bread produced is sliced wrapped white bread. Intense competition in merchandising, however, has resulted in the deve'opment of a wide range of different breads in recent years.

New Processes

When one is looking around for new ideas and methods with which to develop a business or industry, it is wise to seek something which departs in a radical fashion from convention. At the present time there is no dearth of such processes in the bread industry, and I will only deal with the most promising I have seen and which are already being applied in the industry.

Possibly the most interesting development is the continuous dough process. Less revolutionary is the stable ferment, or broth process, and also of interest is the application of quick freezing techniques to breads. I have already mentioned the batter process which was developed in England to replace chemical oxidizing agents.

For many years baking technologists have considered the possibility of developing a method for the continuous production of bread, which would involve the elimination of the batch fermentation of the dough.

In the past, attempts to devise such a process have not been successful due largely to the inability to obtain a product which sufficiently resembled bread, particularly from the point of view of flavor. Plants have been in operation in Europe and after a short time have closed down.

A real advance, however, has been made in the U.S. as a result of work carried out by Dr. J. C. Baker, one of the leading cereal chemists in that country. His process has enabled the production of bread which is difficult to distinguish from that baked by conventional methods. One large bakery I visited in the U.S. is at present working entirely on this process and a number of other plants were contemplated in the near future.

What does the Baker process involve and how does it differ from conventional methods of breadmaking?

In this system there are no dough mixers as we know them, dividers, intermediate provers, molders, bowls or fermentation room. The layout is entirely different to the traditional idea of breadmaking. Dry ingredients and a pre-fermented liquid broth are carefully metered into a premixer, from there the mixture is pumped into a developer which stretches, kneads and develops the dough, which is continuously extruded through a sheeter as a broad ribbon and is cut off into pieces which fall into bread tins. The dough pieces are given a final tin proof, then baked. Flour has a very great effect on the operation which, it is suggested, functions best with strong types having long mixing requirements.

The ingredients used in making bread by the continuous dough process are the same as for conventional baking with certain modifications with regard to oxidizing agents. The broth or ferment consists of water, sugar, skim milk powder, yeast, mineral salts, salt, vitamin enrichment tablets, enzyme active soya, acid calcium phosphate and calcium sulphate.

Oxidation of the dough is achieved by a mixture of potassium iodate and potassium bromate used at the rate of 12 ppm and 45 ppm respectively.

The My Bread Company in New Bedford, where I saw this process in operation, is now making all doughs, wholemeal and white bread, by this continuous process. The developer had an output of 56 1-lb. loaves per minute. The doughs coming from the developer were very sticky and the weight loss was greater than obtained with the conventional baking. To overcome the dough sticking to the bread tin, the tins were treated with silicone glaze and greased.

The whole process was regulated from a control panel and represented automation in the true sense of the word.

The quality of the bread produced was in many respects amazing, the crust color was most attractive and the crumb soft and tender with a fine even grain. I made a point of obtaining some competitors' loaves from a supermarket for the purposes of comparison, and on physical appearance, i.e., grain, texture, crust color and character of crust, the continuous processed loaf was undeniably superior.

In my opinion the main objections were:

(1) Lack of flavor—the bread did not have the characteristic bread flavor we know, and to me milk and and propionates appeared to be

Some of those groceries would be as out of date today as the rumble seat itself! As you know, new processing methods, new packaging, new ingredients have changed many food products.

Even staples like family flour have been improved, thanks to vitamin enrichment. Today, food buyers *expect* food products to carry the "ENRICHED LABEL".

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the dominant taste factors.

I would expect the difference in flavor in bread made from the continuous and conventional methods to be more marked in Australia where true bread flavor derived from fermentation is the dominant factor.

(2) The high moisture content of the crumb also gives rather claggy eating qualities.

The proprietor of the bakery, who was naturally a continuous mixing enthusiast, claimed that his sales of bread had increased by 33 to 35% since commercial production with the process had commenced 16 months previously. However, the firm had engaged in a rather high-powered advertising campaign and from the money they had expended I would have expected this campaign to have contributed significantly towards the increased sales. One of the advertisements used in the sales campaign rather intrigued me and read as follows:

"MAKE THE 20 SECOND TEST"

(1) **Look—Compare** the fine smooth texture—**No Holes**

(2) **Feel**—the velvety tenderness

(3) **Taste**—Munch it slowly to get the delicate flavor and goodness of batter whipped Sunbeam

The only Bread of its kind

Take one look and you'll see the difference

Take one taste and you'll know the difference

General Sales Plug on Wrappers—NOW—Batter Whipped

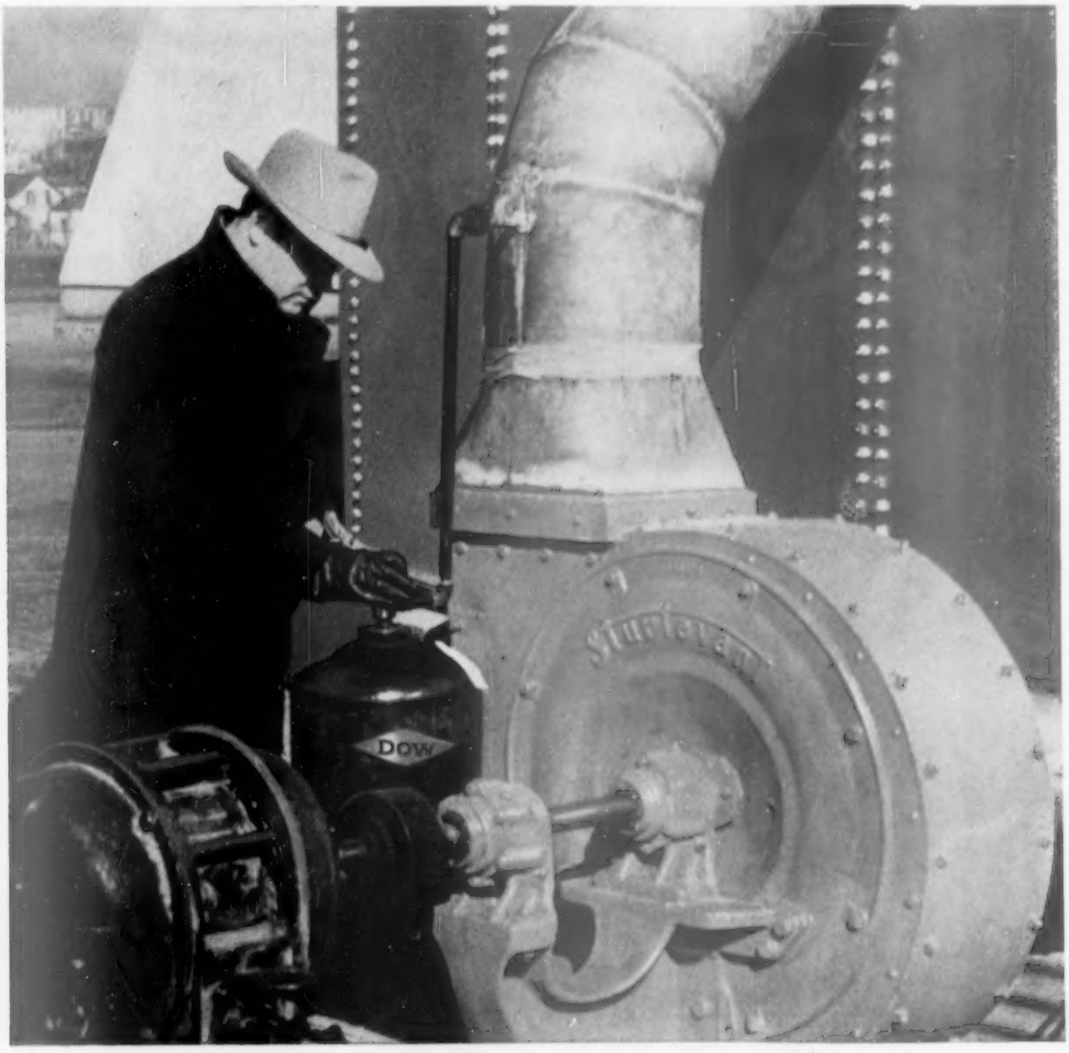
While I would not expect the continuous dough process to sweep the industry in the near future, it cannot be dismissed as impractical. The fact that truly amazing effects can be obtained with the physical properties of the loaf by such revolutionary methods warrants serious study and consideration by the baking technologists. It most certainly opens up many new and stimulating approaches to this very complex subject of bread quality.

Stable Ferment Process

Another new baking method involving the use of a ferment or broth and following on from there with conventional dough machinery is the stable ferment process. Here again the same ingredients are used as for a conventional dough. A proportion of the ingredients yeast, mineral salts, salt, milk powder, water and flour is made into a ferment which is set aside for four hours at 90° F. The dough is then made with this ferment and the remainder of the ingredients and allowed to stand for 30 minutes. It is here we have the big advantage of this process, namely reduction in the bulk fermentation time of the dough from at least three hours to 30 minutes. This results in a considerable saving in floor space. In the bakery I visited they had been saved the expense of proceeding with very considerable building extensions by changing over to this process. The quality of the loaf was similar to that made by conventional methods.

Of course, in dealing with these ferment systems an essential requirement is a high standard of hygiene, equal to that which would prevail in the yeast factory or brewery. In this regard it is interesting to note that one large bakery in America is contemplating extending the ferment system to growing yeast sufficient to maintain its own fermentation process. It was very confident of being able to do this, although personally I have some doubts.

The baker is perhaps faced with more complex problems than most food manufacturers, not only because of the fact that he must control a rather complicated fermentation process, but more so since complex biochemical reactions occur in the loaf of bread subsequent to baking, these



Control all insects in one weekend

Recirculation of Dow Methyl Bromide saves time, money

If you have a forced-air ventilating system in your grain storages, Dow Methyl Bromide can save you up to 50% on material costs in fumigation.

Just install a return duct to make it a *recirculating* system and introduce Dow Methyl Bromide. The result is complete control of insects in all life stages, substantial savings in material costs and minimum quarantine delays. (The entire fumigation operation can often be completed over the weekend.)

The natural advantages of Dow Methyl Bromide assure fast, uniform dispersion throughout the commodity being fumigated. Dosages can be closely measured and controlled, thus eliminating the use of excess fumigant.

Dow Methyl Bromide is also a superior fumigant for elevators, vaults, ships, boxcars and for many other applications. Dow engineering service can help you use Dow Methyl Bromide and the recirculation process successfully. Write us today for specific information on your fumigant requirements. THE DOW CHEMICAL COMPANY, Fumigant Sales, Midland, Michigan.

YOU CAN DEPEND ON DOW

Joseph McDowell

APPOINTED—Lucian Strong, president of the Strong-Scott Manufacturing Co., Minneapolis, has announced the appointment of Joseph McDowell as manager of sales communications. Mr. McDowell will coordinate advertising, public relations and promotion for both the grain processing equipment division and the industrial processing equipment division of Strong-Scott. A native of Minneapolis, he is a graduate of the University of Minnesota. Prior to joining Strong-Scott, Mr. McDowell was sales promotion editor at Minneapolis-Honeywell and copywriter for Gamble-Skogmo, Inc.

we generally refer to as staling. The fermentation system must be worked to a tight time schedule and bread must be delivered to the customer in a freshly baked state. These two factors make it difficult to alter and rearrange production schedules and make it impossible to build up stocks as is normal practice in any manufacturing business.

In an endeavor to cope with these two problems some use has been made of refrigeration. Bakeries both in Europe and the U.S. have experimented with the retardation of dough fermentation by means of refrigeration, holding the fermented dough in a stable state at a temperature of 40° F. Dough retardation has not proved very successful as far as bread is concerned but it is used by many bakeries overseas for fermented small goods such as buns.

The most interesting application of refrigeration in the bread industry has been the quick freezing of bread. This process is in use in several large bakeries in the U.S. and has some promise as a means of overcoming production difficulties in Australia.

In one bakery I visited outside New York, 5% of the total production was frozen and conveyed by large refrigerated trucks, each holding 20,000 loaves, as far south as Florida. In this bakery fresh bread is placed in a blast freezer capable of handling 1,000 lb. of bread an hour, 14 tons of refrigeration operated by two motors of 35 hp. and 75 hp. were required to control the freezer at -25° F. After freezing the bread was held in a holding room with a capacity for 100,000 1-lb. loaves and operating at a temperature of 0° F. The packing room was situated between the freezing and holding room and operated at 60° F. The time of freezing in this particular plant was three and a half to four hours.

The cost of freezing varies, and depends on the quantity of bread frozen. The bakery I am quoting sold frozen bread at 25 to 26¢, compared with 20¢ for the normal loaf.

We have operated a small quick freezing plant in a Sydney bakery but have encountered some difficulties which can be attributed largely to the type of bread being frozen. In America with few exceptions all bread is sliced and wrapped and the condition of the crust, therefore, is not important. In Australia, however, where most of the bread is unwrapped, the character and nature of the crust are very important quality factors. We have found that quick freezing results in shelling or flaking of the crust which detracts from the appearance of the loaf. There may be methods of overcoming this problem and this is a subject for further investigation.

Impact of Methods

The impact of merchandising or marketing methods on production practices is of particular interest in the baking industry. Two extreme instances can be seen when comparing the industry in Australia with that in the U.S. In Australia bread is sold largely by means of house-to-house delivery. The loaf is in an unwrapped state and there is only limited competition between bakers. This method of merchandising obviously does not lend itself to high-pressure advertising and publicity.

Where bread is sliced and wrapped, the wrapper acts as an advertising medium and sales of this bread are usually pushed under a variety of proprietary trade names. In Australia the overall production of sliced wrapped bread would only be in the vicinity of 10% of the total bread production—it is greater of course in the larger cities, where in some bakeries, it may range between 20% and 30% of the total.

In the U.S. there is no door-to-door delivery as we know it; bread is sold through the stores and supermarkets and it is sliced and wrapped. One stall might carry as many as six different brands of bread. Wrappings are bright and highly colored and brands such as Miss Sunbeam, Mother Parker's Old Fashioned and Sunshine readily come to mind. Unlike his Australian counterpart, who must make his bread within very restricted hours, five-day week, day baking, and so on, the American baker can operate his plant right around the clock seven days a week. He is in a position, therefore, to keep bread deliveries up to the stores, which themselves are often open every day.

The Australian housewife judges her bread on appearance of the loaf, its texture and eating quality. The American housewife, having only bread enclosed in a waxed wrapper, cannot judge on appearance and her sole test of quality is to squeeze the loaf as a guide to freshness. In my opinion, the squeeze test, as it is known, militates very largely against the production of good quality bread in the U.S. To obtain a soft loaf, American bakeries use excessive amounts of additives, such as shortening and milk powder, thereby losing many of the characteristics of bread, and there is also the tendency to underbake the bread and make very slack doughs in order to simulate softness. The fact that bread is rarely eaten less than 12 hours old enables them to underbake without suffering the detrimental effects we would experience in Australia. At the same time the quality does suffer.

Some American bakeries are now switching to cellulose film, rather than waxed paper, where crust color

FROM MONSANTO
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PY-RAN
For the consistent controlled leavening action . . . that wins the homemaker to your self-rising flour and prepared mixes . . . every time with every use.
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and appearance again become selling features.

The emphasis on soft bread in the U.S. explained to me the reason why there was attached to many bakeries a bread shop. From this shop the baker sold all his stale bread, which in some instances amounted to a staggering percentage of his total production. In one factory as much as 15% of the total production of bread, cake and small goods, was returned as stales. Many bakeries showed figures as high as 12% and the average appeared to be around 7%.

This brings us to an interesting angle on the American approach to pushing sales. I asked several bakers "If your returns are so high, why not reduce production?" The reply was "No, the public is attracted to the biggest stack of bread in the store, our salesmen are instructed to keep our bread replenished to a greater extent than competitors'. If the store is only selling 90 out of 100 loaves delivered, rather than reduce the amount we would increase it to 120 and hope that they might sell 100."

You can see the wicked circle which must result from such a policy. It also explains to some extent the reason why the price of bread in America does not reflect the saving which might be expected from the undoubted efficiency of their production methods.

Over-Capitalized Bakeries

In Australia bread production is, without doubt, inefficient and uneconomic in the extreme. Bakeries are heavily over-capitalized with regard to plant which can only be operated at the most for five days and a total of 40 hours a week. The one day, Friday, when three days' bread must be produced, sets the capacity of the bakery which must under-produce on the remaining four days. A similar degree of inefficiency exists where labor is used in place of machinery. The ingredient cost and merchandising of bread, however, are comparatively inexpensive. The result is that a 2 lb. loaf sells for approximately 14¢ to the housewife and the 1 lb. sliced wrapped (equivalent to the American loaf) also sells at about 14¢.

In the U.S. on the other hand production is most efficient; the bakery with the same plant as its Australian counterpart will produce three times as much bread due to the ability to work shifts through the week. The American formula is more expensive than the Australian and naturally merchandising the bread is much more costly. The resultant loaf of bread in the U.S. sells for 20-25¢ a 1 lb. loaf.

The per capita consumption of bread in Australia is 175 lb. while in the U.S. and Canada it is approximately 95 lb., figures which tell an interesting story but one which is open to a variety of interpretations which we cannot discuss today.

While American bakers are endeavoring to produce variety in their baked products there is a certain sameness about all the bread whether it be white or any other variety.

I was particularly interested to visit two enterprising bakeries who were successfully capitalizing on this particular fact. There is a bakery just out of New York known as Pepperidge Farm. In terms of bread production it is a large and highly successful business producing over 2,000 loaves an hour and working around the clock. With two other factories situated in different parts of the country bread from the Pepperidge Farm Bakery is distributed over a wide area. On American bread standards the quality is poor, the crumb is coarse and heavy and the loaf lacks volume, faults which the American baker does his best to avoid. The fact, however, that this bread is different from most other bread gives it an appeal to sufficient people to make the venture worthwhile.

The Pepperidge Farm Bakery was established by Mrs. Margaret Rudkin who started making bread in her home for the family, then for her neighbors, and ultimately developed the successful business it is today. The endeavor is to simulate as much as possible homemade bread, a fact which is given much publicity. Batch methods are employed and ingredients such as molasses, honey, butter and whole milk are used in the dough.

In the first place no machinery was used, the bread being hand-made. Ultimately production got the better of them and they had to fall back on mechanical mixers and dividers. However, they still employ scores of wom-

Advertisement

INSIDE SCIENCE NEW EDITION

The Vital Story of MILLED WHITE RICE

Enriched with Vitamins and Iron for Better Health

by Science Writer

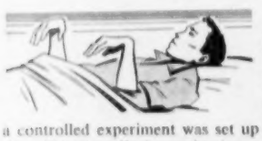
A second "Battle of Bataan" in the Philippines has proven beyond all doubt the value of vitamin enrichment to consumers of white rice.

The famous Bataan experiment in 1948-1950 proved conclusively that whole populations can benefit from enrichment of white rice with vitamins and iron, that disease and death caused by dietary deficiencies can be overcome, that enrichment is a key to better health among infants, children and adults.

What Happened at the Second "Battle of Bataan"

Before the start of the Bataan trial, these facts were evident:

- Polished white rice is the principal food of millions throughout the world. Good food though it is, it lacks several of the key nutrients occurring in the brown rice from which it is milled, and beriberi is often common where white rice is the main food.
- In the Philippines, beriberi was common and mortality from it high.
- Beriberi is caused by insufficient vitamin B_1 in the diet. It yields when vitamin B_1 is given to its victims. It does not occur when human beings receive enough of this vitamin in their diet.
- To prevent beriberi where white rice is the the main food, vitamin B_1 must be added to the diet, either by itself or in food such as rice.
- For centuries it has been universal practice to rinse rice before cooking, hence vitamin B_1 (and any other water-soluble nutrient factor) should be added in such a way that it will not dissolve out.
- Through a process developed in the laboratories of Hoffmann-La Roche, it is possible to enrich white rice with water-soluble vitamins and iron so they will not wash off during this rinsing prior to cooking.



With these facts known, the second "Battle of Bataan" began. Through the cooperation of Philippine public agencies, the Williams-Waterman Fund, the USPHS, and Hoffmann-La Roche a controlled experiment was set up in the province of Bataan. More than 12,000 medical examinations were made, before the enrichment of rice began. Nearly 13% of those examined had beriberi.

Enriched white rice was then put into commerce in the experimental area, but not in the control area.

What happened? *Within two years beriberi was practically wiped out in the experimental zone!* . . . beriberi mortality dropped almost to zero . . . almost 90% who had symptoms of the disease before enrichment's start were free from signs of the disease or were greatly improved . . . thousands of people were helped to better health. News of the success of enrichment reached people in the control area and caused them to demand that their rice be enriched, too.

Other Countries Follow Suit

Word of the excellent results of the Bataan experiment fanned out throughout the world. The largest rice miller in Thailand marketed enriched white rice with success in 1951. In that year, also, the Puerto Rican government enacted legislation requiring that all white rice sold there be enriched, beginning early in 1952. Since then, enriched rice has been made available to the public in Cuba, Venezuela, Colombia, The Dominican Republic, Taiwan (Formosa), Singapore, and Australia.

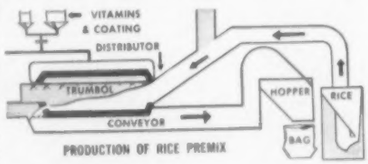
South Carolina Adopts Rice Enrichment

South Carolina, a state having very high per-capita white rice consumption, passed a law in the spring of 1956 requiring that all white rice sold within the state after July 1 be enriched with vitamin B_1 (thiamine), niacin, and iron, and it is hoped to include riboflavin (vitamin B_2) at a later date. South Carolina is the first state in the USA to enact rice enrichment legislation; it has required enrichment of white flour and corn meal since 1942 and 1943 respectively.

How is White Rice Enriched?

The enriching method in widest use throughout the world employs a method developed in the laboratories of Hoffmann-La Roche Inc., pioneers in the research and production of vitamins.

The Roche method impregnates rice grains with thiamine, niacin, riboflavin if desired, and iron and adds a final, outer coating of edible material to protect the vitamins against deterioration and preliminary washing and rinsing. For economy large amounts of vitamins are applied to small amounts of rice to make a "premix" and one pound of this "premix" is then mixed with a larger quantity (usually 199 lbs.) of ordinary milled white rice at the rice mill. As required in Philippine and Puerto Rican legislation, U. S. Federal Specification N-R-351C and South Carolina regulations for bulk (bags of 50 or more pounds) white rice, each pound of this nutritionally-improved rice provides not less than 2.0 mg. of thiamine, 16 mg. of niacin, and 13 mg. of iron and 85% of these levels are assuredly present after a prescribed rinsing test. In some countries, riboflavin also is included.



PRODUCTION OF RICE PREMIX

Other methods of enriching are permitted by the South Carolina statute. Small amounts of rice packaged for retail sale may have the vitamins and iron present as a powder which clings to the individual rice grains, or a liquid spray can be used. These packages must be labeled: "Do not rinse before or drain after cooking."

The Federal Food and Drug Administration in December of 1956 published proposed definitions and standards of identity for enriched rice. These standards, currently under discussion, provide for vitamin levels along the lines of Puerto Rican and South Carolina requirements.

What of the Future?

The trend to nutritionally-improved foods for better health is definite. The United States, a world-leader in the enrichment of white flour, white bread, corn meal and grits, farina, pastina, macaroni products, and breakfast cereals is now recognizing the need to enrich milled white rice. *When good foods are made better, everyone benefits.*

This article is part of series on the enrichment of processed cereal grain foods which are enriched for better nutrition. It is published by the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. An illustrated brochure containing the text of all articles in the series is available at your request without charge.

BRITISH FLOUR TESTS: A CORRECTION

An error appeared in the text of the article titled "Preliminary Tests on some new types of flour and the outlook for bakers" which appeared in the August issue of this publication. The British Baking Industries Research Assn., through Miss Ruth Bennett, one of the authors of the article, points out that in the last column of the first page of the article, in the penultimate paragraph, the sentence following the reference to the miniature test baking procedure in use at BBIRA should have read: "In this procedure 230 g. flour is doughed with 4 g. of yeast and 4½ g. of salt," and not percentage as stated.

en to handle and knead the dough pieces before baking. To me it seems they were doing their utmost to spoil the bread and the results obtained were only what could be expected. Still it was deliberately done and the difference from the normal loaf was great enough to guarantee sales.

Another bakery had the same idea. Using a similar formula to the Pepperidge loaf, they produced hearth bread, which is one of their best-selling lines. This again was a very heavy, coarse loaf, obtained by deliberately mishandling the dough.

The baking industry today poses many problems for the technologist; the development of new processes, such as we have seen overseas, and the increasing emphasis on standards of quality, which in the large production units can only be maintained by rigid control. There has without doubt been a revolution in the old craft-industry of breadmaking, a revolution in which the technologist has played and still is playing a most important part.

——BREAD IS THE STAFF OF LIFE——

Chase Announces Sales Changes

H. B. Rue

J. B. Trigg

CHICAGO — W. N. Brock, vice president and general sales manager for Chase Bag Co., has announced three promotions in the company's eastern regional sales staff.

Harrison B. Rue, formerly eastern regional sales director and manager of Chase's manufacturing branch at Buffalo, has been placed in charge of sales of textile, Saxolin and small bags in the company's general sales department. He joined Chase as a sales representative in New Orleans in 1946, and subsequently served as manager of the Memphis sales office and as sales manager at Buffalo.

H. E. Dennie, manager of the firm's manufacturing branch at Philadelphia, has been appointed to succeed Mr. Rue as eastern sales director. Mr. Dennie will continue his duties as Philadelphia branch manager along with his new responsibilities. He began with Chase in the advertising department in 1945, and later served as a sales representative in the Chicago territory before going to Philadelphia.

H. E. Dennie

John B. Trigg, formerly sales manager at Buffalo, will assume the position of branch manager there, at the same time retaining his direction of sales force activities. Mr. Trigg has been with Chase since 1939, having served in Portland, Ore., and Dallas, Texas, prior to Buffalo.

——BREAD IS THE STAFF OF LIFE——

ELEVATOR INCORPORATES

CLARKS, NEB. — The Farmers Union Cooperative Elevator here has completed incorporation, with an authorized capitalization of $200,000.

Equipment, Purchasing Promotions Announced By Allis-Chalmers

MILWAUKEE — The Allis-Chalmers Mfg. Co. has announced managerial promotions in its industrial equipment and purchasing departments. Robert L. Halsted has been appointed general manager of the industrial equipment division, succeeding P. F. Bauer, who was recently named managing director of Allis-Chalmers International, a new operating division.

Mr. Halsted will be succeeded as manager of the Allis-Chalmers processing machinery department by Edward H. Baxa.

Mr. Halsted joined Allis-Chalmers in 1935 as a salesman in the Cincinnati district office. He was named manager of the Charleston, W.Va., office in 1940. In 1948 he became manager of the Cleveland office, and four years later manager of the central region, and was appointed manager of the processing machinery department in 1955. He is a mechanical engineering graduate of the University of Michigan.

Mr. Baxa joined Allis-Chalmers processing machinery department in 1941 and has been affiliated with it since. A. D. Foote has been named assistant director of purchases, succeeding C. H. Norton, who recently retired after 31 years of service in the purchasing division.

A graduate engineer, Mr. Foote joined Allis-Chalmers in 1936, shortly after receiving his bachelor of science degree from Leland Stanford University. He became associated with the company's purchasing division in June, 1942. He has been West Allis Works purchasing agent since November, 1953, and will combine that post with his new one.

DAY

EQUIPMENT FOR INDUSTRY

LOW COST, EFFICIENT

Dust Control

More and more leading companies are depending on DAY for complete dust control service. DAY can recommend and engineer a complete dust control system for the needs of any industrial plant.

Photo at right shows three DAY Type "AC"* Reverse Jet dust filters with weather-proof housing located on the roof of a rubber company. The DAY "AC" filter is the largest selling filter of its type in the world. Its low maintenance cost and high efficiency are two of the many reasons why it is so popular.

For complete information write for Bulletin 559.

* Licensed by H. J. Hersey, Jr.

Type "RJ"* Dust Filter - Highly efficient, combination cyclone and filter. Write for Bulletin 560.

"HV" Dust Separator — A heavy gauge, welded, highly efficient centrifugal dust separator. Write for Bulletin 576.

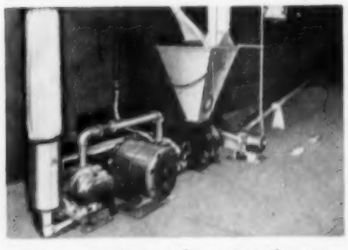
Type "G" Fans — Statically and dynamically balanced; designed principally for dust control applications. Write for Bulletin 471.

Dual-Clone Dust Separator — Exclusive design gives high efficiency at low resistance. Write for Bulletin 573.

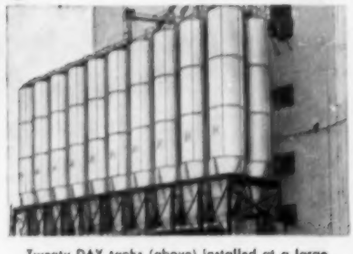
Unit Dust Controllers — Complete, low cost unit combines high efficiency of Dual-Clone and Exhaustor. Write for Bulletin 510.

Money-Saving Bulk Material Storage and Handling

A two-section DAY horizontal tank installed in a Canadian plant. Pneumatically loaded and mechanically unloaded. Note air relief on top of tank.



DAY pneumatic conveying systems improve plant efficiency. Installation pictured above required two pumps in series because of long (250 feet) run.



Twenty DAY tanks (above) installed at a large Midwest plant. Tanks serve packaging line as well as truck, railcar loading operation. Each tank holds approximately 20 tons of product.

What's Behind the Swing to DAY Bulk Material Storage and Handling? Many plants with DAY equipment save up to 35¢ on every 100 pounds of material handled. DAY equipment is also safer, cleaner and more efficient than manual material handling. DAY bulk equipment can be installed anywhere. It is completely sanitary and weather-proof. Find out how much money your plant can save when it is equipped with DAY products for handling and storing bulk materials. For latest information write toDAY for Bulletin 574.

Write for name of your nearest DAY application engineer. He will help you with any dust control or bulk material equipment problem. This service is offered without cost or obligation.

The DAY Company

SOLD in UNITED STATES by The DAY SALES Company 822 Third Ave. N.E., Minneapolis 13, Minn.

MADE and SOLD in CANADA by The DAY Company of Canada, Ltd. P. O. Box 70E, Fort William, Ontario

Portable Air Conveying Units Proving Value in Emergencies

Portable air conveying units are proving invaluable in emergencies. These are trailer units which can be easily transported by truck to a danger area and promptly hooked up with portable metal pipe and hose to withdraw grain through a combination of partial vacuum and low air pressure.

The Fuller Co., Catasauqua, Pa., in urging grain handlers to give serious thought to emergency measures for recovering their grain supplies before disaster strikes, lists the following illustrations of the value of air conveying units following recent natural disasters:

During the Feather River flood at Yuba City, Cal., an air conveyor unit was responsible for saving approximately $80,000 worth of paddy rice, which had been stored away in storage bins endangered by the rising waters. The bins were located at the Vanderford Ranch, owned by a member of the Rice Growers Assn.

The association dispatched one of its three air conveyor units from Sacramento, 50 miles away, and recovery operations began within an hour after arrival. In spite of rain drenched ground, it required only two or three men to manipulate the lines and carry out the entire operation.

The air conveyor unit took the place of Vanderford Ranch's mechanical conveying equipment, which had been put out of action due to a stoppage in electric power. Directing operations was Carlton C. Chesley, operations manager of the association.

The system operated around the clock continuously until a total of 1,600,000 pounds of rice was removed. At $5 per hundred pounds, the value of this rice came to about $80,000. The rate of recovery was estimated to be 33⅓ tons an hour.

Though flood damage in the area was extensive, Vanderford Ranch was able to truck its reclaimed rice to West Sacramento for milling at the association's mill.

Fire at Knight's Landing

The mobility and operating speed of an air conveyor unit was also credited with saving many million pounds of stored rice from being destroyed by fire at Knight's Landing, Cal. The fire caused extensive damage to the warehouse and rice drying facilities of the Sutter Basin Co-op, another association member.

While flames threatened complete destruction of the 18 million-pound rice supply, the association was able to spot one of its portable air conveyors near the storage bins and set up a suction line to a tunnel under these bins. This tunnel housed reclaiming belt conveyors, which had failed to operate because of fire damage.

As with the air conveyor at Yuba City, the suction line removed rice from the bins to a receiver atop a trailer unit, where it was then delivered under pressure to large trucks at the discharge end. Air for both vacuum type conveying operations was supplied by twin-rotary, positive-pressure exhausters driven by diesel engines.

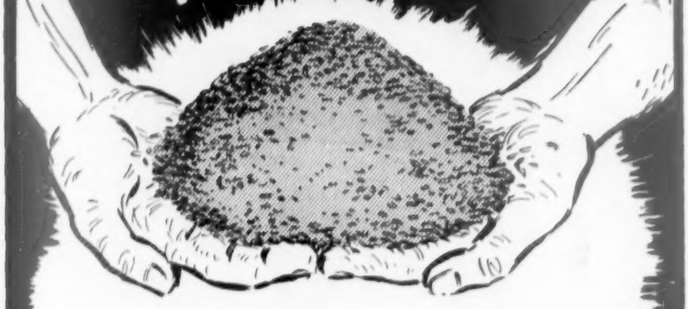
What the Association Does

At the association's plant outside Sacramento, the air conveyor portable equipment is occasionally used to supplement a stationary air conveyor system in unloading railroad boxcars. Both systems deliver from the cars to elevator "boots," which convey rice into bins prior to milling.

The association is a cooperative organization comprised of rice growers located in the Sacramento and San Joaquin valleys. With sizeable facilities for drying, storing and milling members' rice, the association produces approximately 50% of all rice grown in California every year.

RGA rice is packed in 100-lb. cotton and burlap sack containers to be sold in domestic and foreign markets, especially for the cereal and brewery industries. A considerable portion is packed in one and two-pound cellophane bags for chain store usage.

Put Your Grain Fumigation Problems in Competent Hands!



Don't Forget - it takes BOTH a quality fumigant and experienced handling to get the best results from a fumigation.

Infuco - has grown to leadership in the field by providing BOTH and producing results that speak for themselves.

Remember - when you have problems, we can provide the answers.

"Where Service Backs the Salesman!"

SERVING AMERICA'S FOOD INDUSTRY

the Industrial Fumigant Company

923 STATE LINE KANSAS CITY, MISSOURI

—BREAD IS THE STAFF OF LIFE—

Radioactivity Can Lengthen Storage Life of Grain

"Hot bullets" that blast germs but spare nutrients can increase the storage-life of grain and lessen the threat of a world food shortage members of the American Chemical Society were told at their recent national meeting at New York.

The bullets, emitted as a stream of deadly particles from radioactive materials in the technique known as radiation sterilization, can kill bacteria and insects that attack grain, it was reported by Dr. V. Chalam Metta of the University of Illinois. The bombardment, however, does not injure the valuable protein quality of wheat and corn, he assured the society's division of agricultural and food chemistry.

Dr. Metta, who is research assistant professor of animal nutrition at the university's college of agriculture, pointed out that in the U.S. alone damage to stored cereal grains amounts to millions of dollars every year. If radiation can give long-lasting protection to cereals, which are the main sources of energy and protein in many underdeveloped countries, this will provide a partial answer to the problem of increasing the world's food supply.

With the tremendous growth in human population, interest in the problems of food preservation has increased considerably in recent years, according to Dr. Metta. Fortunately, with the advent of nuclear energy the new technique of radiation sterilization has become available. In this method, foods which are either sterilized or pasteurized according to the degree of exposure to penetrating gamma rays, have "absolutely no induced radioactivity," the professor declared. It has been demonstrated by some scientists that irradiation can greatly increase the shelf-life of meat

CANADIAN MACARONI TRADE PROGRESSES

WINNIPEG—Factory shipments in the macaroni and kindred products industry in Canada increased over 21% in value in 1956 to a record $12,022,000 from the previous peak of $9,897,000 in 1955. The Bureau of Statistics reports the number of establishments was unchanged for the year at 17, but average number of employees declined to 658 from 672. Salary and wage payments advanced to $1,876,000 from $1,758,000, while the cost of materials climbed to $6,712,000 from $5,971,000 and the value added by manufacturer rose to $5,223,000 from $3,846,000. Shipments of macaroni, spaghetti, vermicelli and noodles rose to 90,074,000 lb. from 78,904,000 and the value to $11,124,000 from $9,397,000.

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and also can block sprouting in onions and potatoes.

Dr. Metta described laboratory studies of irradiated wheat and corn in which precise methods were used to evaluate the quality of protein and to measure its energy value to animals. Frozen corn and wheat gluten were exposed to three million roentgens—units of measurement for radiation. They were cooked and then made part of a balanced diet fed to rats for a period of 30 days. No off-flavors or odors were produced in the food and there was no change in the protein's digestibility or its availability to the animal system after digestion, reported the speaker. When the food was subjected to 10 million roentgens the protein digestibility was reduced by 5%, but there was still no decrease in its biological value, he said.

Even though radiation processing does not alter the protein value of the two grains which were tested, Dr. Metta emphasized that the conclusions are valid only for a short-term study. The technique can cause changes in the molecular structure of cereals and, therefore, long-term studies are needed to fully evaluate this method of food preservation.

Dr. B. Connor Johnson, professor of animal nutrition at the University of Illinois, co-authored the report.

——BREAD IS THE STAFF OF LIFE——

Sharples Dedicates New English Plant

The Sharples Corp., Philadelphia, manufacturers of centrifugal equipment and process engineers, has announced the formal opening of the new modern factory and offices of its wholly-owned English subsidiary, Sharples Centrifuges, Ltd., at Camberley, Surrey, England.

Known as the Tower Works, the new buildings, which are located on a three-acre site, provide for substantially increased manufacturing, research and test facilities which will enable the company to step up production of its present line of centrifuges as well as to broaden the line with the addition of new types and designs. C. Peter Balfour is the managing director of the English company, which was formerly located at Stroud, Gloucestershire.

The new Tower Works incorporates many of the most advanced features of industrial design in both the factory and offices, the company said. The factory, a brick-walled structure, is supported by large steel portal frames which provide an open bay 200 ft. long by 50 ft. wide. In addition to the manufacturing sections, a pilot plant, laboratory and test bay are also located in the factory area. This connects with a glass-enclosed tower to accommodate special tanks for development projects.

The office, also of steel frame construction, is fully glass-enclosed in a curtain walling system. Below the sill line a special colored glass is used, backed with thermal insulation. In the interior the partitions are so designed that they can be readily repositioned as rearrangement of office spacing or enlargement is required.

The Sharples Corp. has a worldwide sales organization with manufacturing facilities in the Argentine, France, Germany and Japan as well as in England and the U.S.

Sharples Centrifuges, Ltd., produces a broad line of continuous centrifuges for the separation and clarification of liquids, the removal and recovery of solids and for the classification of dry powders.

Bulk Handling Firm Appoints Dealer

BEATRICE, NEB. — Tote System, Inc. of Beatrice, manufacturer of bulk material handling equipment, announces the appointment of Thornel Associates, 4754 West Washington Blvd., Chicago, as representative for its complete line of Tote bins, tilts, tanks and accessory equipment in that area.

Tote System presently has 35 manufacturers representatives located in 23 states and the territories of Hawaii and Puerto Rico. Pressoturn, Ltd., is licensed to manufacture and distribute Tote bins and accessory equipment in England.

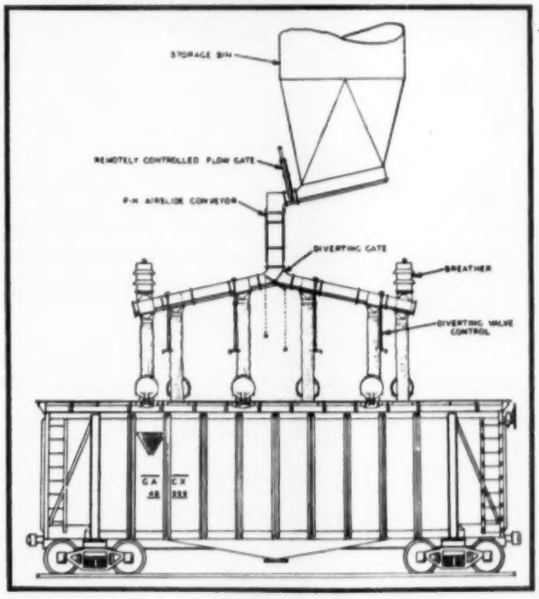
——BREAD IS THE STAFF OF LIFE——

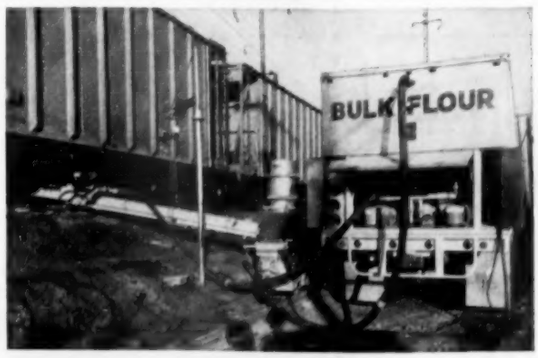
Allis-Chalmers Lists Sales Appointments

MILWAUKEE—Allis-Chalmers International, recently organized to handle all manufacturing, engineering and sales operations outside the U.S. and Canada, has announced several sales personnel appointments covering its engineering products.

Warren J. Holmes has been named manager of sales; J. C. Warner, territorial sales manager, Middle and East Asia, Oceania; D. W. Arendt, territorial sales manager, Africa, Europe, Near East; Ladis Pinilla, regional sales supervisor, South America; and George D. Sheriffs, regional sales supervisor, Mexico, Central America, Caribbean area.

All have previously been associated with the export department of Allis-Chalmers Industries Group.





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When it's conveying of bulk flour, Fuller engineers have the answers

Store Door Delivery, Inc. operates two Fruehauf Airslide bulk-flour trailers serving three large bakeries in the New York Metropolitan area. Airslide bulk flour cars are spotted on an elevated track in the railroad yard. Rapid and sanitary loading of the trailer is accomplished with the Fuller Airslide transfer unit conveying directly from car to trailer. A trailer of 20 tons capacity can be loaded in seven minutes. This rapid loading (and unloading) enables this trucker to make many more deliveries per day.

Application of F-H Airslides for loading from mill to Airslide bulk flour cars. Cars can be loaded in approximately ten minutes, depending upon the size of Airslides installed. In addition to time saved, rapid loading will materially help solve the widely discussed problem of condensation that occurs during slow loading operation, especially true in cold weather. Fast, sanitary loading also enables the miller to maintain more rigid quality control all the way . . . from the mill, through transit, and final delivery to the customer.

Unusual bulk transfer. Clarke Bulk Transfer delivers bulk flour to bakeries in the Philadelphia area. An isolated and almost forgotten railroad siding was selected and put to use. The unusual relationship of the siding with respect to road level posed a problem . . . solved by a transfer unit consisting of a combination of the F-H Airslide®, Airveyor® equipment, and Fruehauf Airslide trailer. The transfer unit, mounted on a small four-wheel truck at road level, is moved on a narrow gauge track and connected to the Airslide bulk flour car for transfer of the flour to the trailer. When not in use the transfer unit is moved into a small storage shed.

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No. 5819—Plate Magnet

Greatly increased tramp iron separating efficiency is claimed for a new plate magnet developed by Stearns Magnetic Products. Designed to remove tramp iron from flowing material in chutes, spouts, ducts or on conveyors, the Magman series plate magnet employs an offset air gap

principle. Company officials said the new design takes full advantage of the magnetic strength of Hyflux Alnico V—the most powerful permanent magnet material commercially available. Because of the offset air gap feature of the plate magnet, magnetic force is concentrated directly over the first pole piece. Tramp iron has no chance to speed up as it approaches the magnet face, it is claimed. The unit is offered in three sizes according to strength of pull—series 100, series 200 and series 300. Each size is available in widths from 6-48 in. To receive literature without obligation check No. 5819 on the coupon and mail it to this publication.

No. 5816—Calculator

Grain and feed figure work including invoicing, figuring net bushels and value, computing gross, dockage and net bushels and determining freight costs is possible with the use of a new printing calculating machine, according to its manufacturer, the Victor Adding Machine Co. The Victor automatic printing calculator multiplies, divides, adds and subtracts through one control and 10 numeral keys. Features, in addition to the "Simpla-Key" master control, are automatic constant division and automatic constant multiplication; total transfer button (automatically re-enters and prints any total or product for multiplication or divi-

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- ☐ No. 5798—Screw Conveyor
- ☐ No. 5800—2-Section Car Puller
- ☐ No. 5814—Automatic Mixing System
- ☐ No. 5815—Punched Card System
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sion); the instant stop button; and the "Select-O-Matic" lever, which permits totals or sub-totals automatically with a touch of the motor bar (if desired the alternate total-sub-total key may be used). The machine also has automatic credit balance. The calculator uses only one keyboard for all the functions and prints the essential figures and true symbols on tape for permanent record. The electric machine weighs less than 25 lb. For details check No. 5816 on the coupon and mail it to this publication.

No. 5814—Automatic Mixing System

Buhler Brothers, milling engineer firm, has announced the development of an automatic feed mixing plant which uses a punch card fed into a control desk to produce the desired feed formula. The normal apparatus can choose 20 different ingredients

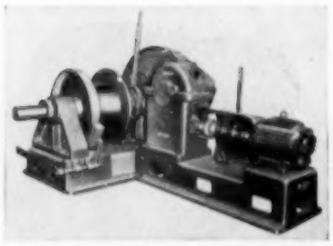
from 25 bins and has an hourly capacity of 10 batches, according to the announcement. The device can be installed for one or more index scales that may work simultaneously or in certain cases one after the other. The working method is outlined as follows: The card with the farmula punched on it is inserted into the feeler member. The contact pins follow the product "A" and command a relay system (comparable to the one used in the telephone) which in turn pre-sets the weight on the scale. The right setting is double-checked and the bin unloading put to work until the desired quantity of product "A" has been reached. The contact pins can now follow product "B" and the whole procedure repeats itself according to "B," and so on. Many other operations may be controlled in the same manner. For details check No. 5814 on the coupon and mail it to Feedstuffs.

No. 5815—Punched Card System

A new punched card system which is claimed to increase accuracy and speed of batch weighing by taking formulation out of the hands of the operator has been developed for users of electronic proportioning equipment, it was announced by Richardson Scale Co. Integrated with an automatic proportioning panel the Richardson punched card reader (PCR) system makes use of punch cards which have been previously coded for prescribed batching formulas. The system starts to function immediately when the operator inserts one of these cards into the PCR unit, pulls a lever to lock it in place and presses a start button. From this point everything works automatically, with an exact cycling of any number of bulk materials through the various stages of weighing, discharge, mixing and conveying away for bagging. Secure details by checking No. 5815 on the coupon and mailing it to this publication.

No. 5800—2-Section Car Puller

The J. B. Ehrsam & Sons Mfg. Co. has prepared literature containing details of the firm's new two section car puller, designed for the handling and spotting of all types of freight cars on railway spurs and sidings. Mounted on a rigid non-deflecting, semi-steel cast base, the unit is shipped in two sections. One section contains the pulling drum, complete with throw-out jaw clutch, bearings and gear. The other is the drive unit, consisting of motor, torque converter, worm gear reducer and pinion gear.



The machine is completely assembled, with all necessary alignments made at the factory. Other features of the car puller include a torque converter mounted directly on the

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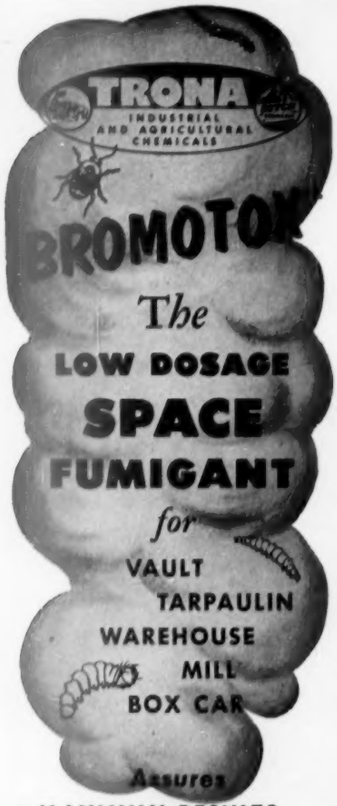

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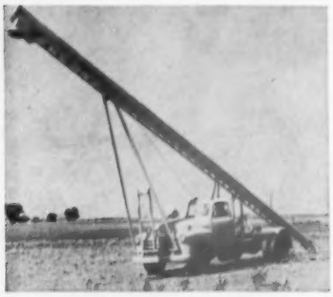
motor shaft, with output torque controlled by a shifting lever. This control may be manual where location permits; or it may be controlled remotely by air cylinders. Secure literature by checking No. 5800 on the coupon and mailing it to this publication.

No. 5798—Screw Conveyor

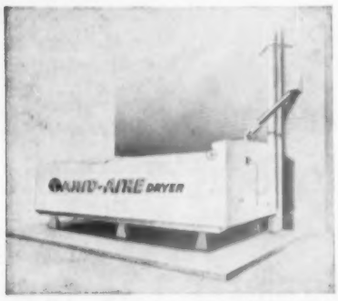
Details of the operation of the Andrews Machine Company's truck mounted heavy duty tubular screw conveyor are available. The unit is in use for filling and emptying government grain bins and other types of flat storage. The machine is driven by power takeoff and a hydraulic pump which turns the screw and raises and lowers the tube. The truck cab is cut in half, thus allowing the discharge end to be lowered to within a few feet of the ground. It is lowered to a level position over the top of the cab for transportation purposes. The machine is available in any diameter and any length. The machine in the photo is 60 ft. long



and the screw is 12 in. (1200 series). This model will move 6,000 bu. an hour, company officials say. Secure full details by checking No. 5798 on the coupon and mailing it to this publication.

No. 5778—Dryer

The Arid-Aire model L dryer is the trade name of a new grain dryer designed for medium sized feed mills and elevators by the Arid-Aire division, Daycom, Inc. Features claimed for the model are: Adjustable cooling system; efficient operation on liquid petroleum gas; 8¼-h. p. motor;



complete assembly upon delivery; and simple installation. If desired, an optional rental-lease plan enables operators to test the dryer at their own plant before buying. At the end of the minimum period, all rental payments may be deducted from the purchase price. For details check No. 5778 on the coupon and mail it to this publication.

—BREAD IS THE STAFF OF LIFE—

Arthur H. Smith, director of management analysis for General Mills, Inc., served as a commentator during a seminar conducted by the National Association of Accountants at the University of Minnesota. The theme of the seminar was the forecast side of budgeting.

Chemistry of Wheat

By DR. THOMAS MORAN

EDITOR'S NOTE: Dr. Moran is director of research for the Research Association of British Flour Millers.

THE chemistry of wheat is a field of research which we regard as of the first importance, and we go on unrepentantly trying to discover new compounds in wheat (methoxy- and 2:6 dimethoxy-p-benzoquinone were two surprising examples) and also mapping the distribution within the grain of its known constituents, particularly the accessory factors. This work is essential in evaluating the nutritive value of a particular type of flour since flour can be made up of any number of the 20 or so individual streams, each of which tends to be characteristic of a particular part of the wheat grain. Dr. Hinton with Dr. Shaw has completed a further study, this time with nicotinic acid. As shown later in this report, although wheat contains only some 2% of fat, research on improvers, on the structure of gluten, and in cereal nutrition (in relation particularly to the essential unsaturated fatty acids) has demonstrated the importance of the fatty constituents of wheat, and we are now working actively in this field.

On the improver problem Dr. Cosgrove has shown that during storage flour takes up oxygen over a period of about three months; at the same time, its baking quality improves. He gives evidence to show that it is due to oxidation of the flour lipids activated by lipoxidase. The lipase in oats has also been further investigated. It was shown to be located mainly in the pericarp of the groat and hence could be destroyed by steaming the groats for 1 or 2 seconds; this treatment has solved an age-old problem in the storage of oatmeal, viz., the progressive increase in the free fatty acids. The fact that the enzyme was associated with the largely insoluble part of the groat suggested that it might be possible to isolate it in pure form. Mr. Martin and Mr. Peers carried this isolation a fair distance, obtaining an extract with a lipase activity 2,000 times that in the original groats, but then unfortunately they had to leave it. The enzyme has an optimum pH of 7.4 and optimum temperature of 37° C. One important sideline to this research was the finding that oat

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lipase is incapable of completely hydrolyzing the triglyceride, tributyrin, splitting off only one fatty acid radical. Mr. Peers has also investigated the properties and destruction of phytase, the enzyme responsible for the break-down of phytin which is the phosphoric acid ester of inositol, present mainly in high extraction flour and which is responsible for immobilizing appreciable amounts of calcium from the rest of the diet. The overall activity is greater in hard than in soft wheats and increases markedly during germination. The optimum pH of the enzyme is 5.15 and optimum temperature 55° C. Activity is greatest in the aleurone and scutullum parts of the grain.

Biophysical

A joint investigation by Prof. Bernal's department at Birkbeck College and the research association has been in progress for over three years and a first paper has been published. Wheat protein, in contrast to the protein in other cereals, shows a characteristic X-ray spacing at 47 A. This same spacing is also present strongly in a particular lipid fraction that can be extracted from wheat. Research is proceeding on the further fractionation of this lipid complex, and it is hoped that this will not only throw light on the structure of gluten but also on the mechanism of improver action.

Dr. Jones and Mr. Campbell have used the changes in density of the wheat endosperm on moistening to follow the movement of water into the intact grain, and their observations have been published in a series of papers. This question of the rate and path of entry of water is of great importance in the conditioning of wheat, i.e., the preparation of wheat for milling so that its endosperm is easily broken down and also more readily detached from its surrounding pericarp. The work has shown that during the brief storage of damped wheat prior to milling the water enters at all points around the periphery of the grain and not merely in the region of the germ: during the preliminary immersion of the wheat the outer layers of the grain behave, in fact, almost like blotting paper or a sponge, and so presumably would the whole grain if it were not for the testa, which Dr. Hinton has shown resist the movement of liquid water. This work has thrown light on the times for moisture equilibrium at different points in the grain and also the effects of varying the temperature of the damped wheat, but much more work is required before conditioning is promoted to something more than an empirical process.

Nutritional

Work has continued on the effects of chemical improvers on flour. In December, 1955, agene (nitrogen trichloride) as a flour improver was discontinued and its place taken largely by chlorine dioxide. Prior to the change, however, an exhaustive study lasting more than three years on the effects of chlorine dioxide on flour had shown (1) that it destroyed the bulk of the tocopherols including vitamin E. This observation was subsequently confirmed by Frazer and his colleagues at Birmingham, and by Moore at Cambridge; (2) of the individual amino acids in the gluten protein only methionine, tyrosine and cysteine showed any modification even after heavy treatment with the gas, and then only to a very small extent, the amounts formed being less than 0.1 p.p.m.; (3) that there was some peroxidation of the lipids which under appropriate conditions could lead to polymerization. Incidentally, this behavior of the lipids led us to believe that they might play a role in the action of gaseous improvers, including oxygen, acting directly or indirectly by a transfer of oxygen to the protein.

In contradistinction to agene the work on chlorine dioxide gave no indication that any toxic derivatives had been formed from the protein. Equally the work showed that there was no significant reduction in the nutritionally essential amino acids, and confirmation of both these points was obtained in feeding tests with rats and dogs. Another interesting check was obtained in experiments on the growth of the isolated wheat embryo in a synthetic medium. If to such a medium be added 2 to 10 p.p.m. of methionine sulphoximine, the amount of this toxic factor formed when flour is treated with agene, growth is stopped. Repeated experiments, however, on the addition of hydrolysates from chlorine dioxide-treated flour have shown no effect on growth.

The decrease in the total reducing value of the lipids extracted from flour treated with chlorine dioxide is a diagnostic test for the use of this improver. A simpler and more elegant test has, however, now been published by Mr. McDermott and Dr. Pace, who have found that treatment with chlorine dioxide reduces the activity of the enzyme peroxidase naturally present in flour. A technique for demonstrating this effect colorimetrically has been worked out. Extracts of flour are prepared using a buffer containing thymol. Such extracts contain the peroxidase, and when added to a mixture of hydrogen peroxide and benzidine produce a pink color. The color is extracted from the mixture with butanol and its intensity measured in a colorimeter. Flour treated with the gas gives a color value lower than

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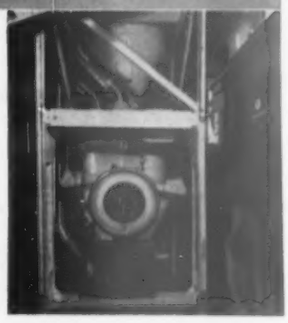
- **Automatic Recording Totalizing!** Net weights are listed in duplicate, automatically, and an accurate totalized net weight record is immediately available.



In a Toledo Bulk Weighing System, a scale with weigh hopper is installed below a garner. Desired number of drafts is set on controls. Weigher cycles automatically—prints gross weight and subtracts residual flour after each draft to provide complete listing and total of NET weights.

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"Some of these suppliers give pretty good sales talks."

that given with the same flour but untreated. The effect is not observed when flour is treated with the other bleaching agents, agene and benzoyl peroxide. The color value obtained also varies with the extraction rate, increasing as the extraction rate increases.

A detailed study is in progress of the amino acid composition of the different protein fractions in flour and bread and a study of the gliadin fraction has been completed and is being prepared for publication. This work has made it possible to re-examine more critically the rate of growth of rats fed on different breads. It has long been known that weanling rats grow more rapidly on a diet of wholemeal bread than on one of white bread, and this fact has been the main nutritional argument in favor of high extraction flour for man. Recently, McCance and Widdowson showed that this differential did not apply to adult rats (five to six weeks from weaning). The explanation, as we have shown, is that the weanling rat is particularly sensitive to small changes in the lysine concentration in diets when the amount of this essential amino acid is in the range 0.3 to 0.5%.

The striking increase in the rate of growth of weanling rats when small quantities of lysine are added to their diet of white bread is shown in Table 1.

Table 1. Growth Rates of Weanling Rats on White Bread, With and Without Lysine Added

Lysine added (as % of diet)	Food consumption (per rat per day)	Weight gain (per rat per day)
	g.	g.
Nil	7.4	1.2
0.06	9.1	1.9
0.12	9.2	2.3
0.18	11.0	3.0
0.24	11.3	3.4
0.30	11.1	3.3

It will be seen that the addition of about 0.25% of lysine almost trebles the rate of growth. Perhaps the most interesting feature however is the demonstration of the good growth-promoting quality of flour protein when it is consumed together with small amounts of lysine—which would be provided, for example, by small additions of foodstuffs of animal origin, e.g., meat, milk, fish. Addition of a lysine source may be said to mobilize the full growth potential available in wheat protein.

Lysine is the limiting essential amino acid in flour protein and its concentration is highest in wholemeal flour. If the lysine content of white flour is raised to that of wholemeal flour the growth with weanling rats is the same on both diets. The practical significance of this work with regard to man is that in any mixed diet, even with the lowest income groups in this country, the content of lysine, whether white or wholemeal bread is eaten, is well above that accepted as the desirable minimum. This work on the growth of rats and the factors influencing growth, particularly when wheaten flour is a constituent of the diet, is under continuous study.

In all our work on rat growth we have measured the food intake as well as the gain in weight of the rats. This is not always easy because on occasions there is much scattering of the food, but nevertheless we believe it to be essential in comparative experiments. This was brought out clearly in growth experiments using flour heavily treated with chlorine dioxide. Growth with such flour was less than with untreated flour but this was due to the lower food intake because of its unpalatability. When compared at the same food intake the growth in both cases was the same.

Milling and Baking Technology

The research extensometer developed by Dr. Halton in 1936, and now manufactured by Henry Simon, Ltd., is in general use for testing the bread- and biscuit-making quality of a flour. With regard to the latter a pure proteolytic enzyme preparation now on the market has been shown to reduce the strength of a flour otherwise too strong for biscuit making. Experiments have also established that the production is harmless to man.

Another approach to controlling the strength of flour—either by increasing or reducing it—has been

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under intensive investigation for the past two years by Dr. Jones and his colleagues. The endosperm of wheat consists of cells about 40 to 120 μ in width. Each of these cells contains starch granules ranging in effective diameter from about 1 to 40 μ; they are embedded in a matrix of protein. During milling most of the individual endosperm cells are ruptured and the finished flour contains a range of "particles" from about 1 μ in diameter upwards; with hard wheats, however, some intact cells can be observed. In the small particle range there are present small pieces of the actual protein matrix so that the protein concentration is much higher in this fraction than in the total flour. On the other hand, the larger and medium-sized starch granules during milling tend to break away from their matrix so that the particle size range from about 20 to 40 μ is relatively rich in starch and poor in protein. Thus, examination of a particular sample of flour (protein content 9.5) milled from a soft wheat gave the following results:

Particle size (μ)	1-13	13-17	17-22	22-28	28-35	>35
% by weight of total flour	4	8	18	18	9	43
Protein content, %	19	14	7	5	7	11.5

From this table it will be seen that segregation of the particles less than about 15 μ in diameter would yield a flour of high protein content. Ordinary sieving, even using the finest flour silks available, is limited to particle sizes of about 40 μ and upwards. However, the finer particles can be separated by air currents making use of the fact that the rate of fall of the smaller particles is less than that of the larger particles. Accordingly, a vertical air current of suitable speed would carry the smaller particles upwards and away while the largest particles would continue their descent. Separation in this way is not a commercial proposition but machines have been developed making use of the principle. In effect a centrifugal force is applied and this has the same result as increasing the gravitational force when the flour particles are simply allowed to fall. It also allows higher air speeds and therefore an increase in the amount of the finer material separated in unit time. The setting of the machine can be adjusted, corresponding to any upper limit of particle size.

There are many problems yet to be solved. One is the grinding of the flour after milling to produce the maximum amount of small particle material with the minimum dilution by starch fragments from the larger starch granules. However, if the processes of grinding and separation can be carried out satisfactorily on the commercial scale the possibilities are opened up of increasing the strength of a breadmaking flour, thereby providing greater latitude in the choice of wheats; the lower protein flour produced in corresponding amount could be even more suitable for certain types of biscuits and cakes than the parent flour.

Of considerable practical importance are the results of an investigation of the effects of variation in temperature of the wheat passing to the first break. Other things being equal, as the temperature of the wheat is raised, up to about 120° F., the yield of bran of a given "finish" (degree of freedom from attached endosperm) is increased. Correspondingly, the extent to which bran fragments occur among the endosperm particles liberated in the breaking system is diminished. The bran is in fact kept larger in particle size throughout the milling system. Furthermore, the endosperm is permanently modified, becoming more "mealy" and friable, so that less power is consumed by the reduction rolls. As a result of this effect, and of the diminished content of bran fragments in the feeds to the reduction rolls, the flour (particularly in the case of the patents or higher grades) is better in color for a given extraction; alternatively, a higher

Bernard J. Sullivan

CANADIAN APPOINTMENT—H. Norman Davis, president of Ogilvie Flour Mills Co., Ltd., Montreal, has announced the appointment of Bernard J. Sullivan as general manager of the company's starch and chemical division. Mr. Sullivan was previously associated with American Viscose Co. and with International Minerals and Chemical Corp.

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extraction of flour of a given color may be obtained. For good results it is only necessary to warm the wheat immediately prior to and while passing through the first break rolls, the stocks being then cooled; a temperature of about 105°F. at the first break is generally satisfactory. A particular advantage of the process is that it amounts to a rapid conditioning process for hard wheat. The method is under examination in mills in this country and in Canada.

Research has also been carried out on a number of other problems, including the assay of B_6 pyridoxine, pantothenic acid and folic acid in flour and bread, the prolonged storage of flour and the growth of mold on home-grown wheat. Survey is also continuous on the fiber content of the different wheatfeeds. In addition, day-to-day problems on "faults" in wheat, flour and bread, and oat products are dealt with by different members of the staff, depending on the probable nature of the fault.

——BREAD IS THE STAFF OF LIFE——

John G. Farabaugh has been appointed to the newly-created post of director of industrial relations for Wheelabrator Corp., Mishawaka, Ind. He is a graduate of the University of Notre Dame.

PHILIP LEA

(Continued from page 1a)

ably equipped with the proper mechanical aids.

Handling at the Ports

So much for farm handling of grain. What about the larger quantities that arrive at the ports, grain which has been harvested as described but brought through country elevator, graded to lake or port elevator, and then shipped out to ports to be unloaded into large port silos?

The pneumatic elevator has innumerable advantages, the principal one being that it is clean to the operator and saves human effort, because the suction intake pipe can be moved and the grain swept up without the use of trimmers.

We next have a simple type of mobile unit. This unit uses the same air for suction, for separating the grain and for blowing the grain to its destination.

Capacity depends to a great extent on how far and how high the grain has to be moved. The advantages of the mobile unit are low capital cost, its mobility, and being able to empty a barge or flat lorry without the use of trimmers.

The bucket or mechanical elevator is also used a great deal for the bulk pick-up from ships. For instance, with a typical fixed mechanical intake elevator on the quayside, you will find that the elevator legs are fixed to a boom for lowering the unit into the ship. Here, trimmers are necessary to remove the grain completely.

These mechanical elevators take very much less power than the pneumatic types but are much dirtier in operation and require very much more labor. They are also lower in capital cost. These advantages are more than offset by the extra human effort that is involved.

What do we learn from this? Simply that pneumatics should be used where automatic pick-up is necessary and mechanical methods where automatic feeds are available. Please remember that these principles apply to the bulk handling of anything from 10-600 tons an hour. I consider that the mechanical handling of meals, etc., is better accomplished at the present time by the use of screw, band or drag link conveyors, and elevators of the bucket, drag link, or screw type, rather than the use of pneumatic installations. Note that I said the present time, because most of these materials arrive in sacks and as yet there is no call for automatic pick-ups. I see no reason why millers' offals and vegetable proteins processed in the U.K. should not be delivered by bulk transport to their point of usage. Even then the problem to move from vehicle to mill may be one for the vehicle rather than the mill, because it seems that bulk transportation developments center round self-contained delivery.

American Bulk Methods

While talking of the merits of one form as opposed to another, I should like to draw your attention to some American methods of bulk transportation. While the Americans have special bulk rail cars for flour, the general form is the adaptation of the ordinary rail boxcar. The boxcar of 50 tons' capacity, after being suitably lined with paper and the door battened up on the inside with timber, is filled with grain or meal which is shot into the top until the car is full. The car is emptied at its destination by clamping on a car dumper, which after the door has been opened and battens pushed away, simply tilts up one end and then the other. One of these cars can be emptied in 4½ minutes.

This same system also applies to road transport, by using standard vehicles but tipping with fixed tipping installations.

The Standard Vehicle

Comparing these methods with our own, it is at once apparent that whereas we feel that any bulk transportation should be in special vehicles, they make use of what is available as standard equipment, by means of

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expensive fixed installations. Is this because of the distances involved, or because the transportation company is prepared to give very much better rates for quicker turnround of vehicles? Certainly the special vehicle is very good, but it can only be used one way. Now this would not be such a problem here as in the U.S. because of the shorter distances involved. The ideal thing for bulk transportation is the standard vehicle which can be used both ways.

When the grain has been handled into the silo by any of the methods described, it is obvious that the most expensive part of the operation is the actual movement over distance, and that human effort has been cut to a minimum.

What of the materials that arrive in sacks? They are handled in sling lots of two to three tons, each individual sack has to be handled into the slings and then from them, with the resultant extra effort. Admittedly, there are some traveling conveyor bands to do the actual movement over distance instead of the sling, but even so the materials must still be manhandled to and from them.

In some cases sacks are cut in the ship's hold and the contents taken in bulk direct to silo; this applies particularly to grain, but can also apply to meals. Otherwise the sacks are generally transported by rail or road to warehouse or inland mill.

By careful study of the movements involved in these operations, it will be seen that many of them can be removed by using a pallet and fork lift truck system of handling. The pallet can be loaded in the hold of the ship, picked up and immediately transferred by the fork lift truck for storage or transportation to delivery points. I do not intend to dwell on this because I want to discuss the use of the fork lift truck later.

In the case of the inland mill sacks arriving by rail or road would be cut and shot direct into bucket elevators for storage in bins, or unloaded into sack warehouse, or again use made of the fork lift truck.

Processing Raw Materials

So much for a brief outline of the equipment involved in raw material handling. We now turn to the processing of our raw material. As I said before, processing methods have almost reached their peak. But I would like to describe some of the latest methods of movement and control between the various individual processes that are necessary to make our finished products.

Examples of these are:

1. The automatic grinder load controls, which have made it possible to include these machines in continuous flow diagrams.

2. The remote control of weighing machines by pneumatic slide, and, in some of the latest installations, by punched card electronic transmission.

3. The automatic disengagement of the roller mill in flour milling.

4. The sequence starting of machines in the mill, especially now that individual motor drives are being fitted.

All these and many more minor automatic devices such as bin level indicators, alarms and stop-and-start drives are designed to save human effort.

The high speed grinder with its pneumatic delivery (however primitive) was the forerunner of modern pneumatic handling, which is to be found in our flour mills today. Ignoring for a minute the merits and demerits of the high or low pressure system, let us confine ourselves to the principles involved. What are its advantages? These can be summarized as follows — virtually choke proof, clean in operation, control of temperature throughout the mill, elimination of infestation, no condensation.

In my opinion the introduction of the pneumatic system to the flour miller is almost as big an advance as was the introduction of the roller mill, not from the point of view of producing a better flour, which of course it does, but from the saving of human effort in installing it, size of buildings, cleaning, and so on.

Turning to the question of pneumatic handling in the provender mill, generally speaking, the capacity of compounding machinery is very high and variable. As yet a completely satisfactory system has not been evolved to enable the cleaner pneumatic system to be used.

However, I am confident that the answers to these problems will be found in due course. Probably the high pressure air system will be the answer; these have not been used before because of the great capital and running cost involved in producing the high pressure. Today, simple single or multiple stage rotary compressors running at very high speeds can be used. These high speeds are now reliable as Sir Frank Whittle

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Vol. 1, No. 2 October 1957

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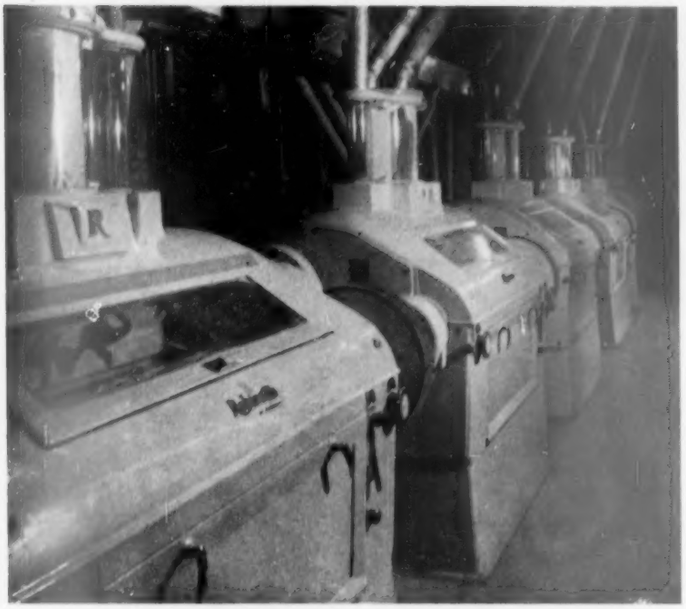

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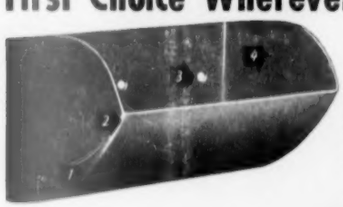

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Mixing Processes

I believe the most important section of any compound manufacturing unit, from a labor saving point of view, is the mixing or proportioning section.

By using a continuous system a great deal of time and therefore labor can be saved. There are many types of continuous systems to choose from:—

First, the continuous mixing using band weighers feeding into a continuous mixing worm.

Second, continuous mixing using individual weighers all tipping different weights and all tipping at the same time. In the flour mill this is called the synchro-weigh system. If one weigher stops they all stop.

Third, proportioning by using individual hand-operated weighers under bins feeding into batch mixers.

Fourth, by using the continuous method of proportioning by volumetric measurers.

Fifth, by the Select-O-Weigh system.

All these systems can be used to mix the materials before grinding or to mix after grinding.

Whichever of them is used then the correct type of bins must be installed to enable the meal to run from them. The most usual installation is a hopper with two straight sides and the sloping sides at an angle of 70°. These take up a lot of room, and a great deal of work is being put into the development of bin dischargers of one sort and another to save both space and therefore capital cost on buildings. One such discharge is the Moore Patent, which consists of a series of triangular supports spaced with a knife cage between each support. The frame is vibrated by an electric vibrator and the material falls to a hopper below.

Whichever of these continuous methods is used, it is apparent that a great deal of human effort is saved by this bulk mixing of materials as opposed to the individual batch type of compounding.

Automatic Devices

These continuous and automatic systems depend to a great extent on the use of automatic devices, for instance, high and low level bin controls, alarms to stop the plant if one bin should run empty; the remote control and setting of the weighers; the remote control of slides feeding and discharging from bins; and finally, the central control of the whole mixing process from a punched card in the production manager's office.

There are limits to these installations and it would be entirely wrong for me to suggest that all compounding should be done in this way. Obviously the capital outlay involved is quite beyond the small miller both in cash and requirement and so we have variants of these continuous systems.

It is not necessary for me to describe any of the processing through which material passes to make the finished product. I am concerning myself here with the actual movement of materials from one process to another. You are all familiar with the standard types of conveyors, both horizontal and vertical. I think it is sufficient to say that each type of conveyor has its place in the plant. The choice of types will depend on the job they are to do. For instance, it would not do to use a worm conveyor for cubes or pellets, because of the breakage that would occur. Likewise a drag conveyor would be in order for the horizontal conveying of material from the press, but would not be suitable as a vertical lift.

Handling Finished Products

Now what of high speed handling of finished products? When speaking of bulk handling we must also include in this category the bulk handling of materials in sacks. There are three methods to be considered. One is to warehouse the packed material in a gravity warehouse, the second is to pack the material at such high speed as to warrant no warehousing, and third to use a flat type of store, pallet and fork lift truck.

It is quite common practice today to store the 24-hour production in bins so that the packing and distribution of the products can be done during the daytime. Thus, some bulk flour installations have five days' bulk storage in bins and one day's production sacked all ready in spiral chutes for delivery.

A further example is the compound mill which runs its grinders 24 hours per day into bins, and mixes on a continuous basis at high speed for only eight hours a day. This same system can be used for pelleting and cubing by using simple automatic plants running 24 hours a day into bins. In actual practice, however, this is seldom done because of the great number of different compounds that have to be made. The smaller compounder could cut his manufacturing costs, however, by taking advantage of longer running hours and smaller capacity plants while still maintaining high output per man-hour, whereas the larger compounder would include processing machines (batteries of presses) which would give sufficient output to keep pace with the faster packing methods, even on a 24-hour basis.

By far the quickest method of packing is the valve pack system, whereby the correct quantity of product is weighed on automatic weighers and dropped into the valve packer, of which there are two types.

These machines, suitably installed, enable one man to handle between 6 and 10 sacks per minute and he can operate a twin machine. When installing this type of equipment it becomes necessary to study completely the amount of movement that the operator has to do. For instance, he is much better sitting than standing; the sack must be removed as soon as possible; and so on.

Although there are many other ways of packing, using different types of machines and each one having its place in the plant, each method should be studied carefully before deciding which is the correct one for the job in hand.

The Fork Lift Truck

Assuming that one must warehouse the manufactured products, then I do not think that there is a better method than the use of the fork lift truck.

Providing each pallet is loaded carefully they can be stacked four pallets high, the average load is 20 cwt. per pallet, and the most sensible pallet size for the miller is 4 by 5 ft. Method of stowage on the pallet is very important and method of stowing the pallet itself is again extremely important.

The fork lift and pallet if properly used can be a great help to any miller. It provides the keen perfectionist

with the ideal labor saving device. It enables low cost single-story buildings to be used to best advantage. But it is no use to the man who will not give the system a great deal of thought and study. Warehouses can get into an awful mess if they are not worked properly, and a great deal of time can be wasted unless the materials are stacked in the correct places at first. If you are considering the use of the fork lift, then first-class men will be needed if its full advantages are to be obtained.

To enable full advantage to be taken of the system, I would strongly recommend that the warehouse should be carefully marked out in bays, by painting white lines on the floor to denote roadways and stowage bays. If these bays are then numbered it makes it easy to keep accurate stock control.

This same system can apply to any warehouse. Every mill or warehouse has its own stowage problem, which is not always under the professional eye of the manager. Remember that materials often arrive when he is not there. By carefully studying the layout, and painting white lines on the floor to indicate passage-ways and stowage bays, you can make sure that there are large and small bays to take care of varying lots. Again, by allocating bays for merchanting at the nearest point of intake, and bays at the right place for manufacturing products, a great deal of space can be saved and stock-keeping improved.

Layout of Bays

From experience I have found that main bays should be four sacks wide using 3 in. white lines. This is then divided by a 1 in. line down the center to give two sack bays. One of the most important results of this system is that the manager can work out the shortest routes for the staff to take and be sure that no time is wasted.

The strange thing about all this is that the average worker will follow the passages, and if there are truck parks marked in the most convenient places, will make use of them. The system revolutionizes housekeeping.

Bulk Delivery of Feed

Bulk delivery of finished products is probably very much in our minds at the present time. The production of eggs, bacon and milk, is becoming more factory-like every day. It is just as essential to save labor on the animal side of a farm as it is on the arable side with its extensive machine aids. It means the re-organizing of buildings and careful planning of poultry houses, piggeries and barns.

The ideal feeding system is one where the feed is delivered automatically to the consumer without any intervening handling. This may include an internal conveying system, or the feed bins so placed throughout the range of buildings or free range that the delivery can be at the right place at the right time.

This bulk delivery is primarily aimed at saving human effort on the farm. The farmer will receive the advantages. As far as the manufacturer is concerned he will receive very little gain except the good will of his customer. There may only be a saving to the miller if a large percentage of his manufacture is in bulk. The necessary vehicle will cost about double that of a platform truck.

What are these savings to the farmer? By far the most important saving will be in human effort.

Other advantages are:—

1. No wastage.
2. Hygiene.
3. Savings in space.
4. Savings in cost of food.

Although the general reaction to bulk handling of feed is favorable and encouraging, there are some quarters who doubt it. I will quote one American jute and paper bag manufacturer, who said:

> "The greatest factor which caused the change to bulk has been the mistaken notion that there was a vast financial gain by using bulk feed, the saving per ton of bulk feed over bag feed is at best very small."

I am afraid he missed the point, because undoubtedly if used properly it can save a great deal of labor.

It seems quite obvious that the bulk delivery of animal foods is with us and if we as a trade are to keep the good will of the farmer we must give him the service he requires. It is not for me to discuss the financial aspect of the case. I know that the miller will be expected to finance the installation of bins and receivers on hire-purchase, loan or credit terms, but while the farmer is encouraged to become more self-sufficient it is up to the industry itself to prove that it can do the job better than he can himself. For this reason I believe that bulk deliveries of feed will increase and more installations will be included.

Selecting the System

The selection of a materials handling system needs careful study. Usually handling problems are solved by a combination of the various types of systems and equipment, because it is seldom that any one type can meet all requirements efficiently.

When there is a choice in methods, the comparative cost per ton of materials handled should be the basis for selection. Since there are many important factors to be considered, the materials handling survey should be made by informed and experienced specialists. Their knowledge must be supplemented by a complete under-

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standing of plant and products; this is best accomplished by assigning one of the plant's own men to work with them in the survey.

The following information should be compiled for each of the routes over which materials are to move:

1. Beginning, end, length and nature of route—including cross traffic, alternate routes, areas and buildings covered.
2. Kind and nature of materials—whether in containers, unit loads or subject to special handling.
3. Weights, dimensions and uniformity of loads.
4. Tonnage of materials—used in computing ton-feet per load.
5. Time required per trip.
6. Variation in the flow of materials.
7. Number of employees required to operate the handling equipment.
8. Handling costs—based on labor, power, depreciation, repair and maintenance, insurance, taxes, breakage, value of floor space, etc.

The need today is for increased production and lower manufacturing costs, and in this mechanical handling of materials plays a vital part. Modern conditions demand modern methods; a well-planned conveying system for handling raw materials and finished products is an essential feature of any industrial activity.

There is an old Cheshire song which goes something like this:

"There was a jolly Miller lived by the River Dee,
He worked and slaved from morn 'til night
And none so blithe as he."

These days are gone, never to return.

The control, operation, maintenance and efficiency of all these mechanical handling machine systems depend on the labor force having a high degree of skill to operate them. Finding new ways to do old jobs is progress.

MECHANIZATION DISCUSSION

(Continued from page 1a)

or compounder, the saving was not very great where sack deliveries had to be made as well. However, the engineer would argue that the bulk delivery of feed saved a great deal of labor to the compounder and it also allowed the farmer to make labor economies. While admitting that the farmer normally made some profit on his sale of old jute sacks, Mr. Lea pointed out that the tendency today was for more feed to be delivered in the non-returnable paper sack rather than the jute sack. Added Mr. Lea:

"We expect the farmer to save money by mechanizing the arable side of his farming, through the use of the combine and power operators. Now the trend is for the farmer to save money by mechanizing operations on the livestock side."

S. C. Banks, of Sandy, asked whether bulk handling has advanced to the stage where the merchant could advise farmers to spend capital on bulk receiving equipment. Mr. Lea's answer was that bulk handling was bound to come, although there was a pretty even distribution of opinion in the trade between those who were for it and those who were against it. His own feeling was that it would come in time. As to whether the time was ripe to go all out for bulk handling on the farm, this depended principally on the labor position in relation to each individual farm.

J. B. Alexander, Worcestershire Farmers, Ltd., raised a pertinent point in the complexity of the feed range—a complexity which was becoming more pronounced with the marketing of new additives. The compound industry, he said, "was making Mr. Heinz look rather small with the number of types of feeding stuffs now available." How could this increase in the range of compound feeding stuffs be married with bulk delivery? Would the answer not be for manufacturers to reverse the present trend?

Mr. Lea agreed that it would be a good thing if the range of feed varieties was cut down. If bulk handling helped to reverse the present trend it would be most welcome. Another point, on the same lines, was the difficulties experienced in the delivery of high fatted pellets. The introduction of fat in high energy rations had produced problems in handling—especially with the breakages that occurred. This might be met by strengthening the pellet or by finding some gentler form of pneumatic delivery.

N. F. Pertwee, Frank Pertwee and Sons, Ltd., said that he had always found one of the biggest snags in using pallets with the fork lift truck was in loading and unloading. He asked whether a paper pallet was now available. Mr. Lea said that paper pallets were being made in the U.K. and they were quite successful. The fork lift truck had to be adapted to take the paper pallet, but he could see no reason why they should not be used successfully in the trade.

Another pertinent question came from W. F. Strickland, F. Strickland & Sons, who asked if there was liaison between machinery manufacturers and the trade on the type of equipment being made for bulk handling. Were individual manufacturers setting out to install equipment on farms which could only be used for receiving feed from one type of bulk delivery system?

There was an interchange of ideas, said Mr. Lea, and eventually it was hoped to build up a system of standard equipment. The mechanization of arable farming had taken 20 to 30 years, and the mechanization of the livestock feeding side would also take time—if not quite so long as the advance in arable farming. It was certain that the milling engineering industry was paying a great deal of attention to the problem and they were considering the exchange of information on this side of their work.

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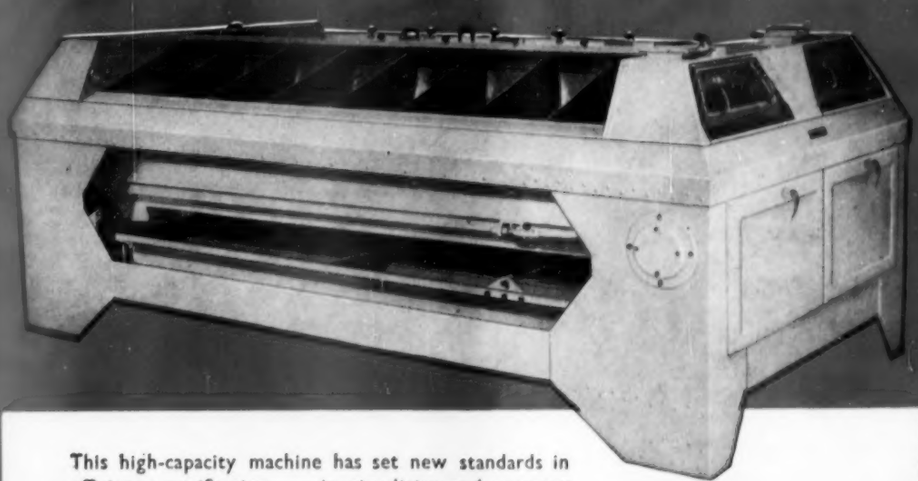

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and, particularly for capacity purposes, it has been reduced to 13%, which seems nearer the average at the present time. Because of the extreme dryness of the usual crop, Australian wheat is often pre-damped for several days ahead of conditioning, which is carried out in hot air or radiator conditioners for a period of one-half to an hour and a half at 110° F. temperature. Since it is predominantly soft wheat, the moisture in the conditioners is usually about 16%. Depending on the moisture of the finished product desired, dryers are used or by-passed.

Damping is usually carried out in two or three stages because of the necessity for adding 6% moisture. A few mills have as much tempering space as they need for cold conditioning, but this is not the usual case. Therefore, hot conditioning is almost a must. The mills which have contributed to my information indicate that they would like at least 24 hours of temper following the conditioner, if possible, and it is noteworthy that they hold this opinion despite the fact that their wheat is predominantly soft. Perhaps the original dryness accounts for this marked desire for more conditioning space.

Australian milling methods are patterned after the British. But for most of their production they seem more interested in capacity and, for a variety of reasons—including remoteness—their mills and conditioning systems have been simplified insofar as possible. One Australian miller emphasized his opinion that cold conditioning would be superior to hot, provided space was available, particularly because moistures and temperatures would be far easier to control. He also pointed out the fact that, due to the 110° F. temperatures used, there was no improvement in the gluten quality of the wheat because of the little heat and moisture used.

Before leaving Australia I would like to mention that here, also, mills prefer wheat going to the 1st break between 70 and 80° F. Also, the cost of fuel in Australia is high and, as a result, there are economic reasons for avoiding drying, heating and cooling wherever possible, although there was an instance of one miller reporting that cold conditioning was used fairly extensively, which does not agree completely with the above. However, in this particular instance, which probably explains it, there was adequate cold tempering space available.

Canadian Practices

Wheat conditioning practices in Canada also offer some interesting aspects. Many of their milling practices, as well as wheat conditioning practices, are very similar to the U.S. because of the proximity, and also because of the desire for the economic advantage of high capacity, and because their wheats are quite uniform and hard. This has to do with hard red spring averaging, perhaps 12½-13½% in protein and approximately 13% average moisture. However, with regard to conditioning equipment, they have followed the English pattern to a certain degree. Conditioning is for the primary purpose of putting the grain in good milling condition, not to alter its character. Canadians mill at about the same moisture as the U.S.—15.5%, turning out flour of approximately 14%. Their capacity is probably split fairly evenly between hot and cold conditioning. If cold, they prefer a minimum of 24 hours at rest like other countries. Partly due to severe winters, perhaps, the process of conditioning wheat with live steam is used in a number of instances, particularly where the cost of fuel, as in Alberta, is low.

Because of the relatively high initial moisture, dryers are used ahead of any stabilizers or live steam processing, so that the moisture pick-up is not too great as a result of washing, which is used in most cases. In one case conditioned wheat is put to rest at 80-90° temperatures for approximately 10 hours and then air cooled to 70° and put to rest again for 18 hours before milling. These processes, which are somewhat different than either the U.S. or Great Britain, seem to do a very good job of preparing the wheat for the mill. However, no claims are made here, or in the U.S., that increased extraction is possible as compared with any other normally good conditioning method. Radiator conditioners stand in good favor and are at a premium where less than 24 hours space is available. Emphasis in at least several good mills is put upon careful control of moisture and temperature. This undoubtedly has something to do with the acceptance of conditioners in some of the Canadian plants.

Here, too, there has been talk about cold conditioning followed by heating to between 100-120° F. just before the 1st break. Here again no claims were made regarding additional extraction, but ash and flour color were claimed to be improved. In some cases at any rate, although by no means a majority, flour quality was claimed to be improved by the above method.

South American Conditioning

To jump to another part of the world, let us briefly take a look at wheat conditioning in South America. Probably this area has more new

(Turn to FRED M. ATKINSON, page 32)

Wallace W. Hyde

CARGILL OFFICER—The appointment of Wallace W. Hyde as assistant vice president, grain division, was announced Oct. 1 by Cargill MacMillan, president of Cargill, Incorporated, Minneapolis. Mr. Hyde is manager of Cargill's New York office, which is concerned primarily with the export of agricultural commodities. Until recently, he was president of Tradax, Inc., New York firm which had acted as broker for Cargill until it was dissolved last month. Mr. Hyde, who now resides in New Jersey, is a native of South Dakota. He was graduated from the University of Minnesota in 1930 and has been active in the grain business since that time.

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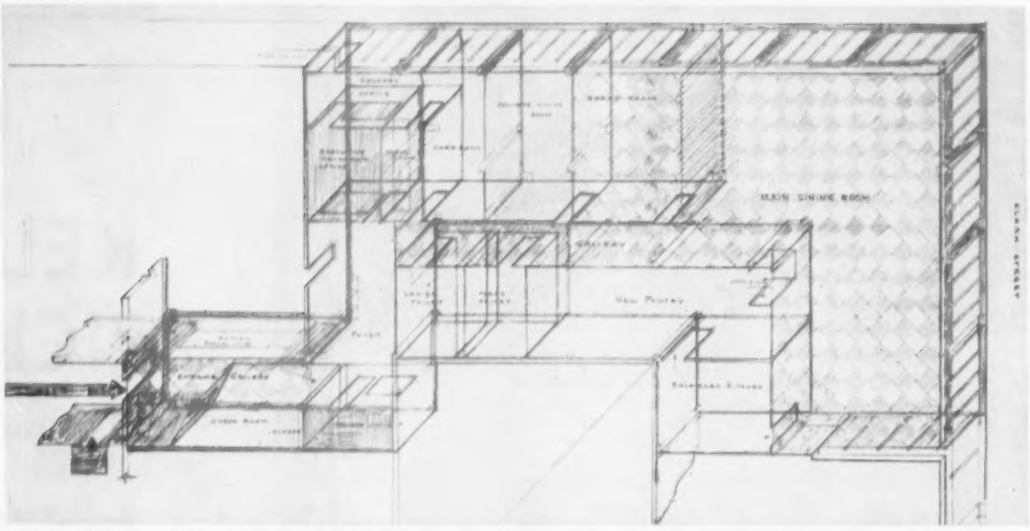

NEW QUARTERS—The architect's sketch above shows the layout of the new penthouse quarters of the Bakers Club of Chicago, atop the Hotel Sherman. Culminating 50 years of growth, the new Bakers Club will officially open Oct. 19, at the time of the American Bakers Assn. convention. Three private dining rooms are available, and the board room at the upper center can be added to the main dining room if necessary. The window walls along the upper right corners are 65 ft. each, offering views of the Chicago skyline and lakefront. Other features include specially-designed fixtures, carpeting and upholstery, a high-fidelity paging system, and completely redesigned food service facilities for efficient and rapid service. An invitation to visit the new Bakers Club quarters has been extended to all in the baking or allied industries.

New York To Roll Out Royal Carpet Of Food and Fun for 1958 ARBA

NEW YORK — Since most retail bakers will bring their wives and daughters to the Associated Retail Bakers of America convention and exhibition in New York City next spring, the program committee is making a special effort to see that the panel discussions and other events reflect the woman's point of view. The New York City Convention Bureau will provide attractions for the women in addition to the convention and exhibition. As an example: Last year 756 conventions were held in New York City, attended by more than 2,500,000 persons. Sixty per cent of the husbands brought their wives. Enthusiasm was created beforehand, after the wives had seen the Visitor's Shopping Guide to New York City, the New York Restaurant Guide and the Visitor's Guide to New York City, booklets put out by the bureau to assist the visitor in making the most of his vacation. Pamphlets are distributed by the bureau to convention managers to promote out-of-town attendance at meetings.

For this great influx of wives of convention delegates, the bureau has a special department which suggests and helps to arrange everything from banquets to trips to the zoo, to make the visit a memorable one. This free bureau service is based on the ideas that if women have a good time in New York, they will want to return, and that they have influence over their husbands when it is time to plan next year's vacation.

Entertainment-Plus

Among the drawing cards which attract out-of-town women are the fashion shows. The bureau works with New York stores in planning fashion shows, which are usually featured at breakfast, lunch or tea time, either in stores or hotels.

Another luxury will be the absence of dishes to wash, beds to make and other everyday chores. Appetites are bound to be satisfied either through exotic foreign dishes or just plain American food. It is possible to dine in another country's atmosphere each day. Hotel service is designed to keep the visitor from lifting a finger.

New York offers banquets, tickets to current plays, and a host of other diversions. There are also tickets to free television and radio shows, and walking tours are always popular. The boat trip around Manhattan Island also rates high in popularity.

Gastronomical Tour

For those who enjoy a wide variety of foods the only task necessary is to set the imagination to work—and then to partake. The visitor might stop first for a mutton chop in a fine old English chop house; then dine on coq au vin at a French sidewalk cafe; sample bouillabaisse as it's made in Marseille; watch Spanish dancers while consuming a casserole of paella; visit an Italian coffee house, and grow nostalgic listening to string music in a candlelit Viennese restaurant.

Then head north to try pigs' knuckles in an old German spot, load a plate at a Swedish smorgasbord, and even taste Russian cuisine.

With quick stops for some authentic Armenian shisk-ke-bab, and an Indian curry, he can move on to the Far East, practice eating lobster Cantonese with chop sticks, and learn how the Japanese prepare sukiyaki.

On the way home the visitor may pause to visit Mexico to try tacos and enchilados. Once back in the states he will be ready for a real American sizzling steak and a big piece of apple pie.

This "round-the-world" tour can be made without leaving New York City! New York offers visitors almost as many types of foreign restaurants as there are flags at the U.N.

VETERANS—110 years of baking experience for the Emrich Baking Co., the largest exclusive restaurant baker in the northwest, is represented by, left, Harvey Hansen; center, Otto R. Emrich and right, Henry Berry. Mr. Emrich, who founded Emrich Baking in 1919 and is chairman of the board, welcomed the two men into the firm's "25 Year Club" at the club's recent annual meeting in Minneapolis.

An Appraisal of Farm Policy As Applied to Wheat and Corn

By GEORGE MONTGOMERY
Head, Department of Agricultural Economics, Kansas State College

A PAPER PRESENTED TO THE CHICAGO BOARD OF TRADE'S 10TH ANNUAL COMMODITY MARKETING SYMPOSIUM

During recent years, public attention and political controversy have centered on percent of parity of farm prices, and flexible versus rigid supports, as the crucial phases of farm policy. Many persons have concluded that these were the only issues of importance or at least the only crucial problems of agriculture. Likewise there tends to exist a naive hope that the next Congress will discover the "proper" per cent of parity and establish the price supports on this "correct" basis.

The basic problems of agriculture are much broader, more deeply rooted, and more difficult to solve than is implied by this facetious statement. Likewise the relationships of the federal government to agriculture, the public policies for agriculture, are much broader than those dealing with the specific areas of price and income supports.

It has become an established policy of the government to provide supervision and regulation and to give assistance to agriculture. A majority of citizens, including taxpayers, consumers and congressmen, agrees that it is appropriate for the federal government to assist farmers with their economic problems. Disagreement and controversy arise in respect to the means of providing the assistance. The political discussions of the last 10 years have been focused, not on whether we should have a farm program, but on the kind of a program that will achieve correction of the problems.

Some of the most difficult and persistent economic problems of agriculture exist in the production and marketing of grains, especially wheat. A few summary statements will indicate the nature of the problems.

1. Per capita consumption of wheat has declined since 1910. The decrease in the consumption of wheat has continued both in periods of depression and periods of prosperity. The increase in population has offset the per capita decline, so that total domestic consumption of wheat for food has remained steady in recent years.

2. Twice during the last 40 years expanded production of grains was stimulated by prices associated with war requirements and post-war need for food relief

3. The nature of the fixed resources, land and equipment, used in grain production, and the lack of alternative uses for land in the semi-arid regions, make adjustment of resources especially difficult, after acreages have been increased.

4. Technological improvements in production have reduced the inputs of land and labor required to produce a given quantity of grain. The problem of adjustment is complicated by the fact that the quantity of grain produced per man hour has doubled since 1940.

The situation can be summarized briefly by saying that since the end of World War II we have produced approximately twice as much wheat as needed for domestic requirements. Exports have been increased by a subsidy of approximately 70¢ bu. to exporters, but expanded production in the importing countries and increasing competition from the other exporting countries indicate that export subsidies will not absorb the output from acreage available for production of grain in the U.S. Industrial outlets or new uses are often proposed as a solution, but these will absorb additional quantities of grain at only sharply lower prices. The basic fact is that the quantity of resources (land and labor) devoted to grain production is greatly in excess of current requirements. An easy solution in the form of increased consumption or larger exports is not

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Separate listings of flour blending plants, rye mills, dry corn mills, buckwheat mills and durum mills in the United States are appended to the list of wheat flour mills.

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Dirk D. Young

APPOINTMENT — Dirk D. Young has been appointed district manager in the multiwall sales department of Hudson Pulp & Paper Corp. to cover Iowa and Nebraska. Mr. Young has had wide experience in the multiwall field. He lives in Des Moines. He attended the University of Wisconsin and the University of Illinois.

available. There exists the difficult task of making adjustments.

Extent of Solution

With this brief statement of the problem, let us consider the extent to which the farm program is achieving a solution to the problem, which has existed since 1920. To analyze the achievements of a program we need to understand the objectives. There is much uncertainty and confusion about the real or actual objectives of the present farm program.

If we examine the titles of the acts giving legislative authority for the farm program or the news releases concerning the legislation, there are the words "adjustment," "conservation" and "soil bank." These terms imply that the major objective is change in the use of resources. Adjusting or changing the use of resources such as land provides the justification of most of our current farm program.

If we examine the legislation, section by section and also examine the administrative procedures, we find other objectives. The Agricultural Adjustment Act of 1933 seeks to "reestablish prices to farmers at a level that will give agricultural commodities a purchasing power with respect to articles farmers buy, equivalent to the purchasing power of agricultural commodities in the base period." The Soil Conservation and Domestic Allotment Act of 1936 sought to reestablish "at as rapid a rate as the Secretary of Agriculture determines to be practical and in the general public interest, . . . the ratio between the purchasing power of the net income per person on farms and that of the net income per person not on farms that prevailed during the five year period August, 1909-July, 1914."

These divergent objectives give rise to much confusion and controversy. The methods or mechanisms appropriate for achieving price or income parity are substantially different from procedures for achieving adjustment in use of resources. Herein lies much of the difficulty of the existing program.

In addition to the incorporated or stated objectives, there are many values or objectives of individuals and of groups. Among these are (1) freedom of initiative and opportunity of the individual, (2) efficiency in use of resources, (3) opportunity to achieve and participate in the benefits of economic progress, (4) stability of prices, (5) security and (6) maintenance of the family size farm. In developing a program, there must be compromises or choices among the possible objectives, or among the objectives held by various groups. For example, choice must be made in respect to the degree of freedom of opportunity and security for the individual. Prices which will provide a parity of income for existing farmers will not achieve the adjustment in use of resources which society thinks desirable.

Basic Features

The means or mechanisms employed to achieve stated or implied objectives are varied and complex. The basic features of the current agricultural program applied to grains are:

(a) Support for prices at a designated percent of parity by a system of non-recourse loans and purchase agreements, available to cooperating producers who comply with acreage allotments.

(b) Provision for marketing quotas when approved by a referendum of producers.

(c) Soil bank payments for acres withdrawn from production and placed in "conservation allotment" or "reserve allotment."

(d) Efforts to dispose of surplus stocks of grain have included (1) subsidy on exports, (2) use of grain for relief, and military purposes, (3) sale of wheat for currency of the purchasing country and (4) use for livestock feed and emergency drouth relief.

To what extent has the program accomplished the goals which have been set forth for agriculture? A national allotment on wheat of 55 million acres has been established by Congress compared with post-war plantings in excess of 80 million acres. An allotment established by the formula for taking into account the existing stocks and prospective requirements would have been about one-half as large as the minimum established by Congress. The harvest acreage of all wheat was 50 million acres in 1956 and 43 million in 1957. The high percentage of the allotted acres placed in the acreage reserve in the Great Plains states for the 1957 harvest reflects the widespread drouth which prevailed prior to planting in the fall of 1956.

It will be interesting to observe the percent of acres signed in the acreage reserve for the 1958 harvest, since soil moisture has been restored in much of the winter wheat area. Acreage reduction has been accompanied by significant increases in average yields, so that total production of wheat has remained near a billion bushe's. The carryover of corn in the last two seasons has exceeded one billion bushels, and current estimates indicate the carryover of the current season may approach 1½ billion. The program has not brought either the planted acreage or the total production of grains in balance with domestic requirements and exports.

The program has also influenced the location of production of grains, especially wheat. An analysis of the location of acreage seeded to wheat indicates the eight wheat producing states east of the Missouri and Mississippi rivers had 13.7% of the U.S. acreage in 1956 compared to 18.3% in 1938 and 15% in 1942. In 1954, 1955, and 1956, these eight states produced one-fourth of the U.S. wheat crop which was the same proportion as in 1956. In Iowa and Minnesota both seeded acreage and production were substantially less than in 1938 or 1942. In Missouri the seeded acreage in 1956 was only 73% as large as in 1938, but the production was 50% larger.

In each of the four states, Illinois, Indiana, Ohio and Pennsylvania, the seeded acreage in 1956 was substantially smaller than in 1938. In Illinois and Indiana the production in recent years has been consistently larger than in 1938. In Michigan the 1956 acreage was about 14% larger, but the production was 60% larger than in 1938.

The seven states of the Great Plains in recent years have seeded from 61 to 63% of the U.S. seeded acreage as compared with 62.3 and 62.6% of the U.S. acreage in 1938 and 1942. These states have produced 43 to 46% of the U.S. production compared to 46% in 1938 and 61% in 1942. All of the states in this group had substantially smaller acreages in 1956 than in 1938, except Colorado. Colorado seeded 3.2 million acres in 1956 compared to 1.8 million in 1938 and 1.4 million in 1942.

In the northwest states the planting was 11 million acres in 1956 compared to 10.2 million in 1938. This represented 18.1% of the U.S. acreage in 1956 as compared to 12.8% in 1938. These states produced 22% of the U.S. crop in 1956 compared to

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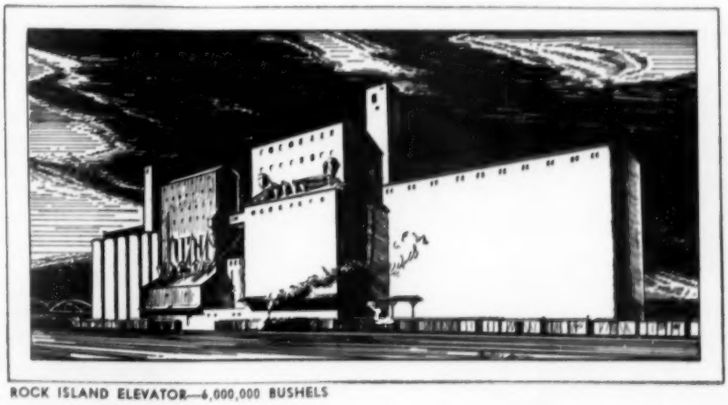
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12.8% in 1938. Both acreage and production increased in Montana and Washington.

Increases and Decreases

Some areas, such as Colorado, Montana and Michigan have been increasing acreage while other areas have reduced substantially. If a generalization were to be made, it appears that increases have occurred in areas of large scale extensive farming where acre costs are low, and in those areas where small farms or part-time farming has an advantage. The number of farms having small acreages of wheat (those having 15 acres or less are not affected by allotment) has increased. At the same time, the level of support prices and the price certainty provided by the loan have encouraged the continuation of production in high risk areas. From the viewpoint of the economy as a whole some of these areas should be withdrawn from wheat production, yet the opportunity to spread overhead costs by extensive operation has increased acreages.

A percentage allotment of a historical base provides equal numerical treatment, but it disregards differences in efficiency and in optimum size. Farms which were efficient units, or optimum size, become inefficient units when required to withdraw one-fourth or one-third of the average acreage. This situation has created intensive striving on the part of efficient farmers to buy more land to maintain the scale of operations, and spread fixed costs of machinery over a larger number of acres. The result has been maintenance or increases in land prices in areas and at a time when the long range outlook for wheat income would be expected to indicate lower values for wheat land. This has made it difficult for young men seeking to get started in farming. It has also complicated the problem for veterans who started farming after World War II and now conclude they must have more land for an efficient unit.

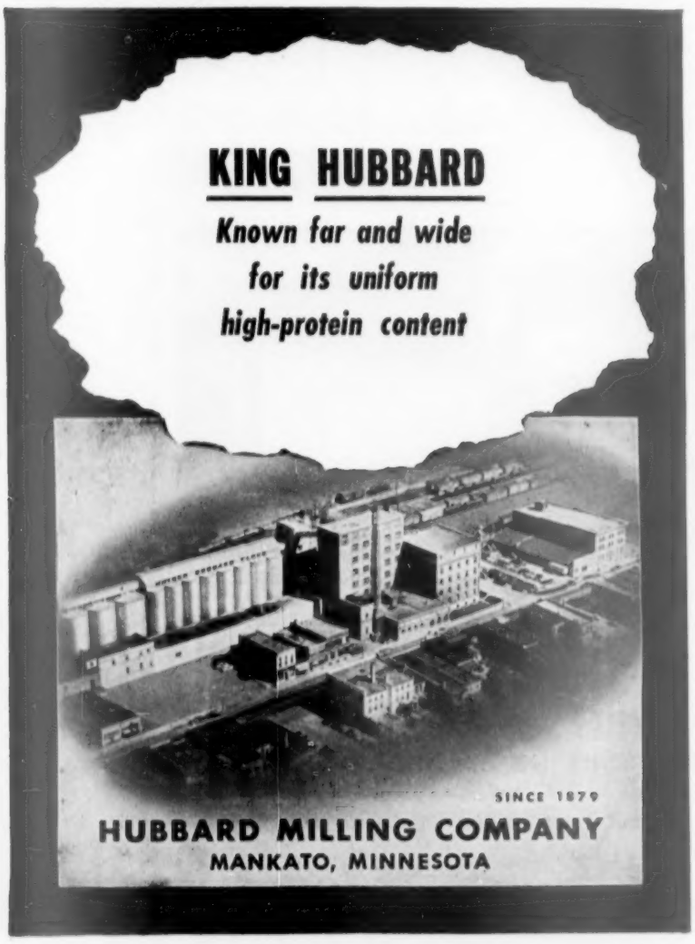
As an over-all score on achieving adjustment, I would rate the existing program with a grade similar to that some of our students receive at mid-semester. "Passing, but far below potential, or/and less than what is needed."

Adjustment and change are the means by which the farm problem will be solved. We have a dynamic, growing, expanding economy in agriculture as well as in the rest of the economy. We are only beginning to make the change required by the fact that per man hour we can produce twice as much as in 1940. We have made some but not enough adjustment to technological advances. Adjustment means larger farms—but fewer farmers. In many instances the existing program provides subsidy to farmers for making the wrong kind of changes. To a substantial extent, the soil bank and the current program seek to maintain the "status quo" of each farm and each farmer, rather than facilitating adjustment and change. It makes efficient farmers inefficient, and farmers who are already inefficient, more inefficient. At the same time, it encourages production of wheat in areas where from the standpoint of society wheat production should not be encouraged.

If we consider another objective—maintenance of prices and income to farmers—the program deserves a somewhat higher score than when appraised on the basis of efficient use of resources. Incomes of wheat and corn producers have been increased both absolutely and relatively to the income of other producers. One measure of the monetary benefits of the program is the level of domestic grain prices as compared to the level of world prices. The export subsidy on wheat is one measure of this differential. If the export subsidy, which has averaged about 70¢ bu., is applied to a crop of 1 billion bushels, an additional income of $700 million to farmers is indicated. This is income in excess of what would have gone to farmers if domestic prices had been determined from the world market. Part of the additional income to farmers came from taxpayers and part from higher prices paid by consumers. In corn and feed grains a similar transfer of income from taxpayers and consumers has occurred. In this instance the consumers were consumers of meat, poultry, eggs and dairy products. In some years, corn became essentially a cash crop to be sold to the government, rather than the raw material for producing meat, poultry and dairy products. Support-

Madison Clement

NEW PRESIDENT — Madison Clement, Clement Grain Co., Waco, Texas, is the new president of the Grain & Feed Dealers National Assn. He was elected at the organization's recent convention in Toledo to succeed E. B. Evans, Evans Grain Co., Decatur, Ill. Mr. Clement served during the past year as first vice president.



WHEAT AGREEMENT SALES—1957-58

Cumulative Transactions in Wheat and Flour Recorded in the Crop Year 1957-58 Through Sept. 17, 1957

(1,000 Metric Tons in Wheat Equivalent)

Importing countries	U.S. Wheat	U.S. Flour	Australia Wheat	Australia Flour	Canada Wheat	Canada Flour	Totals Wheat	Totals Flour	Combined Wh.-Fl.
Austria	...	...	...	...	...	...	...	...	...
Belgium	...	5.1	...	**	14.5	.7	14.5	5.8	20.3
Bolivia	...	...	...	...	...	...	...	...	...
Bra	...	...	...	...	...	...	...	...	...
Costa Rica	...	6.0	...	...	3.5	...	3.5	9.5	9.5
Cuba	31.5	26.9	...	...	...	1.3	31.5	28.2	59.7
Denmark	15.7	...	...	...	.5	...	16.2	...	16.2
Dom. Republic	.3	2.6	...	...	...	2.8	.3	5.4	5.7
Ecuador	3.9	...	...	...	...	...	3.9	...	3.9
Er	...	...	...	...	...	...	...	...	...
El Salvador	...	3.6	...	...	...	.2	...	3.8	3.8
Germany	179.8	...	...	...	154.7	...	334.5	...	334.5
Greece	...	...	...	...	...	...	...	...	...
Guatemala	4.9	1.0	...	...	.6	...	5.5	1.0	6.5
Haiti	4.3	2.8	...	...	...	1.2	4.3	4.0	8.3
Honduras	.2	.3	...	...	...	.3	.2	.6	.8
Iceland	.1	...	...	...	...	...	.1	...	.1
India	190.6	...	...	...	...	...	190.6	...	190.6
Indonesia	...	...	...	9.5	...	...	...	9.5	9.5
Ireland	...	...	...	...	...	...	...	...	...
Israel	45.7	...	...	...	...	...	45.7	...	45.7
Italy	...	...	...	...	...	...	...	...	...
Japan	1.5	...	20.9	...	37.4	...	59.8	...	59.8
K	...	...	...	...	...	...	...	...	...
Lebanon	...	...	...	...	...	...	...	...	...
Liberia	...	**	...	...	...	...	...	**	**
Mexico	...	...	...	...	...	...	...	...	...
Netherlands	20.8	20.3	...	**	91.0	.4	111.8	20.7	132.5
New Zealand	...	...	...	.1	...	...	...	.1	.1
Nicaragua	...	1.6	...	...	...	.4	...	2.0	2.0
Norway	...	5.3	...	...	40.6	...	40.6	5.3	45.9
Panama	...	4.8	...	...	...	.7	...	5.5	5.5
Peru	5.1	9.9	...	...	...	...	5.1	9.9	15.0
Philippines	...	40.1	...	.3	...	17.8	...	58.2	58.2
Portugal	7.1	1.2	...	**	...	.4	7.1	12.7	*19.8
Saudi Arabia	...	.3	...	...	...	...	...	.3	.3
S	...	...	...	...	...	...	...	...	...
Switzerland	9.1	...	...	...	...	...	9.1	...	9.1
T A	...	...	...	...	...	...	...	...	...
Vatican City	...	...	...	...	...	...	...	...	...
Venezuela	.6	20.9	...	...	.5	4.6	1.1	25.5	26.6
Yugoslavia	...	...	...	...	...	...	...	...	...
Totals	521.2	152.7	20.9	9.9	339.8	34.3	881.9	208.0	*1,089.9

**Less than .100.

*Sales included 11,100 metric tons wheat by France to Portugal.

ed prices for grains have made planning operations more difficult for feeders.

Other Results

Another result of the program is that farmers have had more stability of prices than would have prevailed with free market prices. This has tended to encourage larger output, especially the production of wheat in the high risk areas. With stable prices, farmers are able to calculate more accurately how much fertilizer to apply or how many acres of wheat to fallow.

Availability of non-recourse loans and storage agreements has tended to level out the range of seasonal fluctuations in prices of wheat and corn. The number and amount of sharp and irregular price changes have been reduced. Since the loan program has been in effect, the seasonal movement of prices has followed a more definitely established pattern. This has tended to modify the costs of carrying grain in storage. The availability of loans and purchase agreements has limited the volume of future trading and hedging.

There have been substantial increases in storage facilities, especially in the hard winter wheat areas. Larger stocks of grain, mostly in government ownership, have been carried in storage than ever before and, along with the loan program, have minimized year-to-year fluctuations in prices, especially for wheat. Large reserve stocks have been beneficial on several occasions, as for alcohol and industrial uses during the war, and for drouth relief in recent years. However, large stocks in storage have required a large expenditure of government funds for storage charges. If in the future we return to periods of small carryover, it is probable there will be a surplus of storage facilities, especially in the wheat areas.

In appraising the effects of the program on prices and incomes of grain farmers, it must be recognized that stability of prices and improvement of incomes have been achieved by large expenditures of public funds for loans, for export subsidies and for storage charges. There is also the question of the amount of good will and friendship created by grain which we have made available to other countries through surplus disposal schemes. Good will and cooperation have accrued to the U.S. from programs of assistance, but there is doubt about how much of this is due to providing wheat rather than other products. Another effect of the wheat and corn program is that it has created disparity in prices and incomes to grain farmers relative to the prices and incomes of other commodity groups. Wheat and corn farmers have had financial benefits without comparable benefits accruing to livestock producers. Stabilizing the income of commerical grain farmers has brought little benefit to poultrymen or dairymen, nor has it contributed to solving the problem of small low-income farms. The farm program has not reduced the income disparity within agriculture.

Our surplus grain problem will not be solved by policies or programs that seek to maintain the "status quo." Attempting to establish prices on the basis of parity, a relationship which existed 40 years ago, complicates rather than solves the problem. Dividing the available market among the existing producers, whether by acreage or bushel allotments, or by a domestic parity scheme is only a way of stabilizing the sharing of a market which is too small to provide a satisfactory level of income for the existing number of farmers.

Solution Involves Changes

The solution to our surplus grain problem involves difficult changes. Since the output per man hour and per acre has increased, there must be removal of resources to more than compensate for increased efficiency if continuation of the surplus is to be avoided. There must also be changes in size of farms, number of farms and degree of efficiency of operation. This does not imply a return to free market competitive prices for grains to achieve these changes. It does mean the program must be designed to encourage the transfer of resources from grain production to other uses. It does indicate that we must be able and willing to distinguish which regions and which farms can produce grains efficiently. The experience of the past 24 years indicates that the necessary changes cannot be achieved by treating all producers irrespective of size and location on the same percentage basis. We have used large amounts of public funds to pay farmers for not producing or for producing grains which went into government ownership. An alternative program would be to subsidize the production of meat, poultry and dairy products which could be produced on grains from these areas. Such a program would benefit consumers while supporting the income of farmers.

We should develop new and more effective programs of assistance for farmers with small acreages, and for farmers with inefficient units in high risk areas who desire to and who should seek employment outside of agriculture. Preferential consideration or subsidy to those farmers who make changes increasing their efficiency would reverse the trends toward inefficiency established by the existing program of percentage reduction of acreages.

We need to be more honest about the objectives of a farm program. Can we develop a program which is not

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primarily for the purpose of supplementing farm income in the short run? Are we willing to have a program that will really adjust the use of resources, even though it means fewer acres, and fewer and larger farms? These are basic questions that have not been answered. They probably will never be answered fully, but we need fuller agreement than we have had in the past.

If we could decide to what extent we want adjustment in use of resources, and efficiency in farm operations and to what extent we want to maintain the present number and size of farms, progress would be made in clarifying the issues in the farm program.

The experiment stations and the extension services need to provide more effective leadership in assisting farmers to understand their economic problems and choosing their goals. There is need for pioneering and imaginative research on systems of farming and scale of operation which can make the best use of resources in the areas now devoted to specialized grain production.

FATHER'S DAY POSTER — The Father's Day Council, Inc., is already making its promotional plans for 1958, 1959, and for the 50th anniversary of Father's Day in 1960. Four-color posters such as the one illustrated here are available to bakers as well as other business in sizes ranging from 2-in. stickers up through giant, 5-ft. window posters.

Foreign Commentary...

By George E. Swarbreck

Brazil Scores Wheat Quality

The Brazilians are complaining about the poor quality of wheat shipped to them under the terms of Public Law 480.

The shipment under fire totaled 6,622 tons and it was consigned to Moinho Salvador, Bahia, trade sources report. Samples were taken from three holds and mixed, then tested. It is alleged that, while of excellent hectolictric weight, the grain contained only small quantities of gluten —23.700% damp, 8.200% dry—of poor quality and lacking the essential qualities for satisfactory flour production.

The results of the tests have been forwarded to the suppliers by the U.S. ambassador, the trade reports.

The same trade sources say that about 250,000 tons of U.S. wheat have been distributed to millers this year without complaint. Last year, however, some millers said that the U.S. wheat was of poor quality and would not have been accepted had it not been provided under what is looked upon as a "free gift."

In 1956 Brazil imported 1,422,456 metric tons of wheat, against 1,685,700 in 1955. The U.S., Argentina and Uruguay were the three suppliers.

Brazil is scheduled to take 95,000 tons of flour, mainly from the U.S., this year, but the Syndicate of Milling Industries has appealed to the government for the suspension of imports. In 1956, flour imports totaled 53,649 tons.

Heart Disease Investigation

Prof. Andrew A. Abbie, leader of Adelaide University's anthropological expedition to central Australia, says he hopes to study the diet of tribal aborigines to obtain information on controlling high blood pressure and coronary diseases in Europeans.

It has been found that the aborigines have much lower blood pressure and appear to be free of coronary diseases.

The expedition spent three weeks studying the diet of the Pintibu, a hitherto unknown tribe which, until discovered by a police patrol some months ago, had never seen a white man. Prof. Abbie discovered that the food values of desert plants kept the aborigines amazingly healthy in a terrain where Europeans would swiftly perish from starvation.

A member of the expedition, Prof. J. B. Cleland, has collected for study 300 specimens of desert plants of the types on which the aborigines live. The Pintibu eat small animals and reptiles, suck the honey from flowers, grind mulga and grass seeds into a rough bread paste, and eat roots and slanum berries, plants related to the tomato.

Yugoslav Harvest Satisfactory

If current predictions are realized, this year's harvest in Yugoslavia will be the highest since the end of the war, though this does not mean that the wheat target of 3 million tons will be attained. The prewar record, set in 1938, was 3,230,000 tons.

The wheat outturn this year is likely to be 2.7 million tons plus 300,000 tons of rye.

Imports will still be required, according to Dragoslav Mutapovic, agricultural secretary in the government.

Total grain consumption in 1955 was 3.8 million tons and 1.1 million tons had to be imported to make up the harvest of 2.7 million tons.

Yugoslavia's consumption requirements are growing at the rate of 100,000 tons a year and the government expects annual imports to be maintained at around a million tons. Mr. Mutapovic's conclusion is that it will be a long time before his country becomes independent of overseas sources for wheat and rye.

Soil Bank Planned For South Africa

The South Africans are going in for a soil bank, established on the lines used in the U.S. The aim is to check the depletion of the soil fertility and to cutback urpluses of cereals. Subsidies are to be paid to farmers establishing grass leys and loans made for buying livestocks to eat the grass.

Belgian Millers Use All-Domestic Wheat

The Belgian government has ordered the flour millers to buy the entire 1957 wheat crop at an average price of $2.54 bu. Last year only part of the crop had to be bought compulsorily.

This ruling means that the Belgian millers will have to use 60% home grown wheat in their grists, as against 30% last year at the start of the season. The rate was increased from time to time during the season, reaching 65% last May.

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Galvin Crop Estimate Revisions Show More Spring Wheat, Corn, Soybeans

CHICAGO—C. M. Galvin, statistician with Francis I. du Pont & Co., Chicago, has revised his estimate of spring wheat, corn and soybean production upwards since his last prospective production estimate report Sept. 1. Here is the text of Mr. Galvin's new report:

Spring Wheat (all): Production is estimated at 237,660,000 bu. compared with the estimate of 229,438,000 bu. on Sept. 1 and the government forecast of 232,667,000 bu. The modest upward revision resulted from slightly better yields in the Dakotas. Yields throughout the Red River Valley were reported as generally a little higher and no rust damage of any consequence occurred this season.

Corn: Production is estimated at 3,229,043,000 bu. compared with the forecast of 3,042,561,000 bu. on Sept. 1 and the government estimate of 3,194,674,000 bu. The sharp upward revision occurred mainly in the central states, Illinois, Iowa and Nebraska in particular. Weather for maturing the crop during the month has been generally favorable. Yield per acre estimated at 44.7 bu. compared with 45.4 in 1956 and the 10-year average (1946-55) of 37.8 bu.

Southwest Winter Wheat Acreage: A preliminary survey in the states of Nebraska, Kansas, Oklahoma, Texas and Colorado indicates that the combined seeded acreage will approximate 23,441,000 compared with 19,427,000 acres seeded a year ago, with the largest percentage increases in Kansas, Colorado and Nebraska.

PRODUCTION FIGURES IN MILLLIONS

	1957 Indicated crops— Galvin, Oct. 1	Galvin, Sept. 1	Government, Sept. 1	Harvested— 1956	1955	1946-55
Corn, all	3,229	3,042	3,195	3,451	3,230	3,120
Wheat, all	927	918	923	997	934	1,131
Winter	689	689	691	735	704	862
All spring	238	229	232	262	230	269
Other spring	196	189	192	222	210	239
Durum	42	40	40	40	20	30
Oats	1,382	1,382	1,338	1,152	1,603	1,325
Soybeans	482	453	459	456	374	271

BULK INSTALLATION—James O'Connell, eastern district sales manager of Eddy Baking Co., signs for the first shipment of bulk flour to any of the 17 Eddy plants located throughout the Northwest. The bulk flour delivery highlights the 50th anniversary of the company. Some 36,000 pounds of Pillsbury flour were unloaded by air hoses in less than an hour at Eddy's Minneapolis plant. On hand for the occasion were James Sturrock, Pillsbury flour products manager; Mr. O'Connell; S. H. Keehn, manager of Eddy's Minneapolis plant; H. J. Patterson, vice president in Pillsbury's bakery products division, and Mike Delmonico, production superintendent at Eddy's Bakery in Minneapolis.

OFFICIAL CANADIAN HARVEST ESTIMATE

WINNIPEG—Based on indicated yields as at Sept. 15, the Dominion Bureau of Statistics forecast Western Canada's wheat crop at 348,000,000 bu. compared with 551,000,000 harvested last year. The latest figure was 24,000,000 bu. higher than the preliminary estimate based on late August yields. The aggregate included 43,700,000 bu. of durum varieties compared with 39,600,000 bu. a year ago. Better than anticipated yields in Saskatchewan accounted for most of the increase from the preliminary figure. The oat crop now estimated at 240,000,000 bu. is 19,000,000 more than the preliminary and compares with last year's total of 400,000,000 bu. The latest forecast of the barley crop is 216,000,000 bu., up 7,000,000 from the earlier prediction and compares with the 1956 crop of 262,000,000 bu. The rye crop is now placed at 6,280,000 bu. compared with 6,500,000 bu. a year ago, and is more than 500,000 bu. under the preliminary total. Down 1,600,000 bu. from the initial estimate, flax production for 1957 is now put at 22,800,000 bu. compared with 34,100,000 bu. a year ago.

Snow, Rain Halt Harvesting In Canada

WINNIPEG — Record-breaking temperatures for late September and early October over most sections of Western Canada came to an abrupt halt early Oct. 3 when snow blanketed Alberta and cold moved into western Saskatchewan. By the weekend either snow or rain had hit all sections of the prairies and harvest operations were at a standstill with less than 10% of the crop to be taken in.

The snowfall in Alberta ranged up to 8 in. and by Oct. 4 the high temperatures for the day were barely in the 30's and the laws sagged below the 20-mark. Minus snow, but recording variable rains, western Saskatchewan fared little better temperature-wise. In the eastern half of Saskatchewan and all of Manitoba the showers and rains did not interrupt the harvest until Oct. 5 and temperatures held to the high 60's and were well above the frost line through the night.

Prior to the premature winter blast, daytime mercury readings were in the 80's over the entire three prairie provinces. Accompanying high winds helped condition grain for harvest after a prolonged wet spell that caused considerable sprouting and grade loss due to weathering. If the latest visitation of unfavorable weather had held off another week, Western Canada's harvest would have been virtually completed.

—BREAD IS THE STAFF OF LIFE—

Promotion Announced

MONTREAL — Robin Hood Flour Mills, Ltd., has announced the promotion of W. Harold Lewis, assistant manager, to the position of plant manager at its Montreal mill. He replaces Robert Kirkwood who has left the company.

Mr. Lewis has been with Robin Hood since 1933. After various jobs in the company's accounting and traffic departments, he was made assistant traffic manager at Montreal in 1946. In 1950 he became mill run manager at Montreal. He was appointed traffic manager at the Montreal mill in 1952, and held this position until 1956, when he became assistant plant manager.

—BREAD IS THE STAFF OF LIFE—

GRAIN MAN DIES

TORONTO—W. H. Caldwell of the grain sales department, Toronto Elevators, Ltd., died in Toronto General Hospital recently at the age of 64.

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MARKET SUMMARIES

(Continued from page 8)

gible. Shipping directions were good. Prices were up 10¢. Quotations Oct. 4, basis Kansas City: Family $6.56, bakers short patent $5.57, bakers intermediate $5.47, first clears $5.12, second clears $4.82.

Salina: Flour business was good the latter part of the week on concessions of about 11¢ a sack. But closing prices were practically the same as a week earlier. Shipping directions were good.

Hutchinson: Flour sales increased in the Hutchinson area the past week after prolonged inactivity. However, the trade was still light and nothing of very large proportion developed. Prices on both family and bakery flour were up 15¢ cwt., due mainly to strengthening of wheat prices, an increase in cash wheat premiums, and a sharp drop in the millfeed market. Shipping directions for family flour, though still slow, picked up a bit over past weeks. Mill operations were reported at four days, and little increase was expected for this week. Quotations Oct. 4, basis Kansas City: Hard winter family short patent, in cottons, enriched $6.35@6.45, bakers short patent, in papers $5.55@5.60, standard $5.45@5.50.

Ft. Worth: There was some forward booking of bakery flour last week and this, with the day-to-day buying of family flour, amounted to about 150% to 200% of capacity. Running time continued to average five days. Prices of family flour were lowered 10¢, and bakers and first clears were quoted 5¢ lower. Quotations Oct. 4, 100-lb. cottons: Extra high patent flour $7@7.20; standard bakers, unenriched $5.85@5.95; first clears, unenriched $5.05@5.15, delivered Texas common points.

Oklahoma City: Flour sales in both family and bakery were good. Prices closed unchanged on family and 8¢ higher on bakery. Quotations Oct. 4, delivered Oklahoma points in carlots: Family short patent $7@7.20, standard $6.10@6.30, bakery, unenriched short patent $6.01@6.11, 95% standard patent $5.91@6.01, straight grade $5.86@5.96. Truck lots higher on all grades.

Central West

Chicago: A small boom in flour business occurred in the central states during the week ending Oct. 7, mostly an echo from a burst of selling which took place in the Southwest during the week. Total sales in the central states were estimated at around 85% of five-day milling capacity.

The southwestern sales, observers said, resulted from sharp competitive conditions in that area, and the business followed further price concessions ranging to 5¢ sack, or more. Prices generally were said to be the low of the crop year, and around 10¢ below flour sold at the start of the crop year. It is thought chain bakers added 30 to 90 days to their order backlogs. It was a good buy for bakers, some experts said, but not such a good sale for millers, particularly with the millfeed market sagging.

Soft wheat constituted around 55 to 60% of sales made in the central states area, it was estimated. Buying was not widespread. Cracker flours were taken predominantly, with specialty types following.

Quotations Oct. 4: Spring top patent $6.05@6.40, standard $5.95@6.30, clear $5.55@5.85; hard winter short $5.60@5.95, 95% patent $5.50@5.85, clear $5.80, family flour $7.55; soft winter high ratio $7.70, soft winter short $7.41, standard $5.70@6.15, clear $5.45, cookie and cracker flour, papers, $5.45.

St. Lou's: Sales for the week, mostly to the larger accounts, were good on hard wheat flour and fair on soft types. Family flour sales increased, and at the end of the period the mills reported comfortable balances left on contracts. Prices quoted for spring wheat flours were unchanged, with a tendency to strengthen noted at the end of the week. Interest in spring wheat clears is good and fair in hard winters. Offerings are limited.

Production in St. Louis area averaged 81% of capacity last week, slightly higher than the preceding week, and almost equal to the 84% registered the same week a year ago. Shipping directions continue to be very good.

Quotations Oct. 4: Hard winter standard, papers, $5.75; spring standard, papers, $6.25; family $6.05, 100-lb. papers.

East

Buffalo: Mills attempted to push Kansas flour last week at prices below go-around levels, but consumers did not see eye-to-eye with them. Mills considered the prices to be attractive for the months ahead, but the drop in the stock market has made the flour trade bearish. However, there was some business done. Chain store bakeries took advantage of the price concessions, but the independents generally shied away.

One spokesman said consumers cannot have too much on the books because they failed to extend themselves too far at the time of the big go-around late last July and early August. He added that, in the meantime, they have not ordered enough to replace what has been used.

Some of the consumers' reluctance to buy stems from the belief that prices will work lower because options are easy. But the easiness of options results from some congestion at terminals and lagging exports. When the farmer finds a home for his wheat and exports begin to rise the picture is likely to change, others say.

Kansas wheat is selling at 8 to 9 cents below loan values, and farmers are highly unlikely to part with it at such a discount.

Sales of other types of flour were nominal. Spring wheat flour consumers are backing away from current levels and hoping for lower prices later on.

Spring flour ended the week 1¢ higher and Kansas advanced 3¢. Cake flour held unchanged and pastry rose 5¢. Clears held unchanged, but supplies are abundant.

Local bakeries' sales volume held about steady.

Export activity was extremely slow, with Poland about the biggest customer. The Americas came in for some small lots of flour.

Flour output here was sharply below the preceding week but above a year ago. The decline resulted from some mills cutting back for plant purposes. Two mills put in a full 7-day week, one worked 6 days, one 5 days, one 4⅘ days, and the remaining mill 4 days.

Quotations Oct. 4: Spring family $7.60, high gluten $6.87@7.12, short $6.62@6.82, standard $6.52@6.77, straight $6.72, first clear $5.77@6.13; hard winter short $6.18@6.66, standard $6.03@6.56, first clear $5.68; soft winter short patent $7.73@8.07, standard $7.15@7.37, straight $6.09@6.27, first clear $5.11@5.37.

New York: With the exception of some scattered buying of hard winter bakery flours at mid-week, encouraged by price concessions, the local market continued dull in both domestic and export demand.

The hard winter business was reported booked among a few larger buyers, with the majority of bakers and jobbers still in a good to fair supply position and not inclined to book ahead at this time on either hard winters or springs. Demand for

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other bakery flours was also very slow, and anticipated possible interest in family flour and semolina did not materialize, despite reported low balances held by some buyers. Trade opinion indicates these buyers will continue to operate on a hand-to-mouth basis barring a strong upward trend in prices. Export flour sales were reported small and confined mostly to the Americas.

Quotations Oct. 4: Spring short patent $6.89@6.99, standard $6.79@6.89, high gluten $7.14@7.24, clears $5.90@6.10; hard winter short patent $6.51@6.61, standard $6.36@6.46; Pacific soft wheat flour $6.64@7.24; eastern soft wheat straights $5.75@6.10, high ratio $6.65@7.90; family $7.60.

Boston: The local wholesale flour market dallied in a narrow price range last week, with the trading activity pattern once again limited to small lots geared to take care of spot or nearby requirements. Springs finally finished unchanged to 2¢ net higher for the week. Hard winters advanced 3 to 5¢ and received most of what little trading interest there was. Soft wheat flours were extremely dull, with price variations generally confined to readjustments, such as high ratio dipping 5¢ on the inside quotations while Pacifics worked 2¢ higher on the outside.

Mill agents reported that moderate price concessions on hard wheat flour failed to attract any substantial buying interest. While a few sizable lots were moved, the over-all volume was still unimpressive. Spring wheat flour buyers were definitely on the sidelines and appeared to be holding that position with confidence. Some buyers expressed the opinion that the over-all flour business would be slow until colder weather put in its appearance.

Quotations Oct. 5: Spring short patent $6.86@6.96, standard $6.76@6.86, high gluten $7.11@7.26, first clears $6.02@6.22; hard winter short patents $6.48@6.60, standard $6.33@6.45; Pacific soft wheat flour $6.65@7.26; eastern soft wheat straights $5.77@6.12, soft wheat high ratio $6.67@7.92; family $7.62.

Philadelphia: Some buying attention to hard winters gave the local flour market a brief respite from the dullness which held the upper hand most of last week. Otherwise it was a familiar story of quiet dealings, with hand-to-mouth orders dominating. This is a situation many observers attribute to a buying caution which has been heightened by recent periods of weakness in grains in the wake of a number of developments, including favorable weather reports from growing areas and a bearish unofficial crop report.

Hard winters stepped into the spotlight at midweek as reports circulated in the trade that mills were offering concessions. Most of the placements were not large, but they did represent an additional coverage of around 30 days for many bakers, and it was estimated that these now enjoy a sufficient backlog for up to 120 days. Other flours were neglected, although a spell of cool weather in the area was said to have spurred retail sales of baked foods.

Quotations Oct. 4, 100 lb. cotton sack basis: Spring high gluten $7.05@7.15, short patent $6.80@6.90, standard $6.70@6.80, first clear $6.60@6.70; hard winter short patent $6.30@6.40, standard $6.20@6.30; soft winter, nearby $5.40@5.50.

Pittsburgh: Prices of hard Kansas patents at mid-week were quoted several cents below prices of the previous week. Jobbers and bakers bought in very moderate amounts, buyers being those whose contracts are about to expire. Others added to stocks withdrawn. Buyers were on the cautious side and, again, a further price break is thought likely to come later. Directions were from 60 to 120 days. Some local offices of large mills reported flour sales nil the last week and the majority of patrons still well supplied with hard, soft, and spring patents. Clears, high gluten and soft wheat pastry and cake patents had scant buying interest the last week. Family flour in large sizes of advertised brands with the 20¢ reduction in price, had pretty good sales. Unadvertised brands of family flour had only very moderate sales. Directions on family flour remained good, and on other patents fairly good.

Quotations Oct. 4, carlots, cottons, Pittsburgh: Hard Kansas standard patent $6.06@6.31, medium $6.11@6.36, short $6.21@6.46; spring standard patent $6.55@6.68, medium $6.60@6.73, short $6.65@6.78; first clears $6.06@6.36, high gluten $6.87@7.03; advertised family flour $7.60@7.80, unadvertised $6.75@7.31; pastry and cake $5.50@7.62.

South

New Orleans: Considerable business was negotiated the early part of

SUMMARY OF MILLFEED QUOTATIONS

Week-end millfeed quotations, summarized from the market reviews, are based on carload lots, prompt delivery, ton, packed in 100-lb. sacks, f.o.b. at indicated points:

	Chicago	Minneapolis	Buffalo	Philadelphia	Boston
Bran	$33.00@34.00	$30.50@31.00	$34.00@34.75	$....@45.50	$43.50@44.50
Standard midds.	35.00@35.50	30.50@31.50	35.50@36.00	....@46.50	45.50@46.00
Flour midds.	40.50@42.00	38.00@38.50	....@....	....@....	....@....
Red dog	46.50@48.00	....@41.00	49.00@49.50	....@....	....@....
	Kansas City	**St. Louis**	**Ft. Worth**	**New Orleans**	**Seattle**
Bran	$27.00@27.75	$....@33.00	$35.50@36.50	$37.50@38.75	$....@....
Shorts	32.00@32.75	....@38.50	42.00@43.00	44.25@45.75	....@....
Mill run	....@....	....@....	....@....	....@....	....@38.00

	Bran	Shorts	Middlings
Toronto	$....@....	$....@....	$....@....
Winnipeg	32.00@35.00	36.00@38.00	41.00@42.00

SUMMARY OF FLOUR QUOTATIONS

Week-end flour quotations, in sacks of 100 lb. All quotations on basis of carload lots, prompt delivery:

	Chicago	Mpls.	Kans. City	St. Louis	Buffalo
Spring family	$....@....	$6.45@7.35	$....@....	$....@....	$....@7.60
Spring top patent	6.05@6.40	....@....	....@....	....@....	....@....
Spring high gluten	....@....	6.32@6.42	....@....	....@....	....@....
Spring short	....@....	6.07@6.17	....@....	....@....	6.62@6.82
Spring standard	5.95@6.30	....@....	....@....	....@6.25	6.52@6.77
Spring straight	....@....	....@....	....@....	....@....	....@6.72
Spring first clear	....@5.80	5.22@5.80	....@....	....@....	5.77@6.13
Hard winter family	....@7.55	....@....	6.65@7.20	....@6.05	....@....
Hard winter short	....@....	....@....	5.63@5.68	....@....	6.18@6.46
Hard winter standard	....@....	....@....	5.53@5.63	....@5.75	6.03@6.56
Hard winter first clear	....@....	....@....	4.65@4.95	....@....	....@5.68
Soft winter short patent	....@7.41	....@....	....@....	....@....	7.73@8.07
Soft winter standard	5.70@6.15	....@....	....@....	....@....	7.15@7.37
Soft winter straight	....@....	....@....	....@....	....@....	6.09@6.27
Soft winter first clear	....@5.45	....@....	....@....	....@....	5.11@5.37
Rye flour, white	5.29@5.30	5.00@5.07	....@....	....@....	5.79@5.94
Rye flour, dark	4.54@4.55	4.80@4.87	....@....	....@....	5.04@5.19
Semolina blend, bulk	....@....	....@6.20	....@....	....@....	....@....

	New York	Phila.	Boston	Pittsburgh	*New Orl.
Spring family	$....@7.60	$....@....	$....@7.62	$6.75@7.80	$....@....
Spring high gluten	7.14@7.24	7.05@7.15	7.11@7.24	6.87@7.03	6.65@6.85
Spring short	6.89@6.99	6.80@6.90	6.86@6.96	6.65@6.78	6.40@6.60
Spring standard	6.79@6.89	6.70@6.80	6.76@6.86	6.55@6.68	6.20@6.40
Spring first clear	5.90@6.10	6.60@6.70	6.02@6.22	6.06@6.36	5.70@6.00
Hard winter short	6.51@6.61	6.30@6.40	6.48@6.60	6.21@6.46	5.90@6.10
Hard winter standard	6.36@6.46	6.20@6.30	6.33@6.45	6.06@6.31	5.75@5.90
Hard winter first clear	....@....	....@....	....@....	....@....	5.10@5.40
Soft winter short patent	....@....	....@....	....@....	....@....	5.50@5.85
Soft winter straight	5.75@6.10	....@....	5.77@6.12	....@....	5.10@5.40
Soft winter first clear	....@....	....@....	....@....	....@....	4.50@4.95
Rye flour, white	5.70@5.98	5.80@5.98	....@....	5.69@5.79	....@....
Rye flour, dark	....@....	....@....	....@....	4.94@5.09	....@....
Semolina blend, bulk	6.82@6.92	....@....	....@....	....@6.81	....@....

	Seattle		Toronto	**Winnipeg
Family patent	$....@....	Spring top patent	$....@....	$5.70@6.10
Bluestem	....@....	Bakers*	....@....	4.50@4.70
Pastry	....@....	Winter exports†	....@....	....@....

*100-lb. papers. †100-lb. export cottons, f.a.s. Halifax. **For delivery between Ft. William and British Columbia boundary. ‡Bakery wheat flour in 100-lb. papers.

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DEFENSE AWARD—The Fuller Co., Catasauqua, Pa., has received a Defense Department award for cooperation in the reserve component program of the U.S. Army. A blue pennant will be flown from the company's flagpole to commemorate the award. Maj. Gen. James R. Pierce, deputy commander of the U.S. Second Army, read the citation to the Fuller firm at a ceremony attended by 500 company reservists and employees. Col. G. K. Engelhart, retired reservist and a vice president of Fuller, accepted the citation.

the past week, with deliveries from 60 to 120 days. The moderate bookings comprised a fair sized volume. Apparently the baking and jobbing trades were not completely in accord with the going prices and stayed away from all-out booking for the balance of the year, which would account for the spotty buying which did not represent the estimated needs of the trade for the next four months.

Hard winters and northern springs enjoyed the bulk of the passing business, with soft winters regaining some of the slack of the past few weeks.

Shipping directions were good and stocks on hand adequate for this season.

Export flour business was limited to a small amount to the Americas, and limited inquiries from the European area. The Netherlands bidding was again too low for acceptance. Some limited business was negotiated to the Philippines.

New Orleans quotations in carlots, packed in 100 lb. multiwall papers: Hard winter bakery short patent $5.90@6.10, standard $5.75@5.90, first clear $5.10@5.40; spring wheat bakery short patent $6.40@6.60, standard $6.20@6.40, first clear $5.70@6, high gluten $6.65@6.85; soft wheat short patent $5.50@5.85, straight $5.10@5.40, first clear $4.50@4.95, high ratio cake $6.05@6.40; Pacific Coast cake $7.35@7.65, pastry $6.50@6.65.

Pacific Coast

Seattle: The Pacific Northwest flour mills continued to grind at near capacity, filling previously booked orders. Domestic orders are expected to be slow in the immediate future, and no new export business is anticipated.

Portland: Flour mills were gradually catching up on their old bookings and production has been lower in the past 10 days. Prices have shown a weakening tendency due to lower-priced wheat, and this made for less purchasing on the part of wholesalers and bakers. Export bookings have been good, but interest was lacking. Quotations Oct. 5: High gluten $7.32, all Montana $7.12, fancy hard wheat clears $7.02, Bluestem bakers $7.11, cake $7.76, pastry $6.76, pie $6.46, whole wheat 100% $6.50, graham $5.89, cracked wheat $6.01.

Canada

Winnipeg: Export trade in Canadian flour remains disappointing and is reflected in the weekly overseas clearances. The outward movement for the week ending Oct. 3 was 229,400 sacks, compared with exports of 276,100 a week earlier. These totals included 84,800 and 117,400 sacks, respectively, for IWA countries. Domestic trade is moderately good, with the usual improvement in fall buying orders noted. Supplies are about normal and prices unchanged. Quotations Oct. 5: Top patent springs for delivery between Ft. William and the British Columbia boundary, cotton 100's, $5.70@6.10; second patents, cottons, $5.45@5.85; second patents to bakers, paper 100's, $4.50@4.70. All prices cash carlots.

Millfeed

Minneapolis: The past week was one of the slowest in several months for the local millfeed trade. Prices were down as much as $2 on bran and middlings from the previous week when the period closed Oct. 4, and the current week opened with little promise of any pick up in demand. The only buying reported was from a few sources apparently interested in storing millfeed bought at attractively low prices for resale later when the market revives.

There was little hint of pressure from week end mill runs as the period opened Sept. 30 and moved into Oct. 1. But by midweek pressure was beginning to build up, and as the week moved along without significant demand prices sagged. By Oct. 4 there was heavy selling pressure being exerted by mills on both sacked and bulk feeds. But with prices already weakened, buyers stood and watched for further declines.

The new week opened Oct. 7 with some strong indications of supplies accumulating on track and prices still weak.

Quotations Oct. 4: Bran $30.50@31, standard midds. $30.50@31.50, flour midds $38@38.50, red dog $41.

Kansas City: The huge feed grain crops made their weight felt on Southwest millfeed markets in the week ending Oct. 7. Prices plummetted as much as $5.25 as demand fell off to only what was needed at the moment, and substantial supplies pressed on the market. A slight firming trend was noted Oct. 7, but demand was still not enough to hold prices. Sacked shorts declined $5@5.25 during the week, and bran was off $3@3.25. Bulk feeds lost $2@2.50. Quotations Oct. 7, carlots, Kansas City: Bran $27@27.75, shorts $32@32.75, sacked; bran $24@24.50, shorts $29.50@30, middlings $26.75@27.50, bulk.

Wichita: Millfeed demand was good last week, with offerings ample. Bran declined $3 and shorts $4.25 ton. Quotations Oct. 4, basis Kansas City: Bran $27.50@28, shorts $33.25@33.75.

Salina: Demand was slow, with bran $3.50 ton lower and shorts down a like amount. Supplies were plentiful. Quotations Oct. 4, basis delivered Kansas City: Bran $27@27.50, gray shorts $34@34.50.

Hutchinson: Millfeed took a downward turn the past week, with bran off $3 ton and shorts down $4.25 ton. The oncoming milo crop and corn prospects were credited for part of the sharp decline. Demand from nearby feeders and mixers remained good. Quotations Oct. 4, basis Kansas City: Bran $27.25@28, shorts $33@33.75.

Fort Worth: There was improved demand for bran on a break in the market last week. Offerings were well absorbed, but shorts were still in slow demand. Quotations Oct. 4, burlaps; Bran $35.50@36.50, gray shorts $42@43, delivered Texas common points; $2.50 lower on bran and $3.50 lower on shorts, compared with a week previous.

Oklahoma City: A sharp decline in bran of $3.25 and $4.50 on shorts was reported. Quotations, straight cars: Bran $30@31, millrun $33@34, shorts $35.75@36.75. Mixed or pool cars higher on all classes.

Chicago: The lowest prices for millfeeds for several years were registered during the week ending Oct. 7 in the central states. Demand was flat and supplies were piling up. Quotations Oct. 4: Bran $33@34, standard midds. $35@35.50, flour midds. $40.50@42, red dog $46.50@48.

St. Louis: Millfeed demand continued slow, although a slight improvement over the previous week was noted. Bran continued its slow sale. A fair demand has developed for shorts and midds. with the reduced prices for the week. Sales were for immediate or nearby shipment only. Buyers' ideas for discounts on forward sales were unworkable.

Sacked bran was $3 lower from a week earlier, shorts $4, bulk bran $2 lower, and bulk shorts and midds. $1.50 to $3 off. Quotations Oct. 4, basis St. Louis: Bran $33, shorts $38.50 sacked; bran $29, shorts $34, midds. $32 bulk.

Boston: Pressure offerings depressed local millfeed values to the lowest level in about 20 years last week. Domestic bran slid about $1.50, while Canadians eased $1. Domestic middlings declined 50¢, while Canadian type held unchanged, as compared with closing values a week earlier.

Dealers described market conditions as bordering on the chaotic side, with supplies far exceeding the current demand. Unseasonably warm weather frequently given as the reason for the extremely slow tempo.

Quotations Oct. 5: Domestic bran $43.50, Canadian $44.50, domestic middlings $45.50, Canadian $46.

Buffalo: Bran prices dropped to the lowest point since the early 1940's the past week despite a cutback in flour output. Mixers' business still remains on the slow side. Mills increased their output of sacked items, but the market was unable to absorb output, and prices fell sharply. Supplies were available for immediate shipment. Running time ranged from 5 to 7 days. Sacked bran declined $2.50 and bulk bran was off $1. Sacked middlings were down $3 and bulk middlings were off $2. Red dog advanced $1. Quotations Oct. 4: Bran $34@34.75, standard midds. $35.50@36, red dog $49@49.50. The bulk differential on bran was $5.50 and on midds. $4.50.

Pittsburgh: Millfeed prices are lower and sales continue on the slow side. Supplies in all lines are plentiful on prompt or immediate shipments. Quotations Oct. 4, f.o.b. Pittsburgh points: Bran $41@42.50, standard middlings $43@44.50, flour middlings $51@52.50, red dog $56@57.50.

Philadelphia: Demand for millfeed was steady last week, although below the pace of some recent weeks. A slight dampening in interest was attributed to recent periods of weakness in grains. The Oct. 4 list of quotations was unchanged from the previous week: Bran $45.50, standard midds. $46.50.

New Orleans: Pronounced weakness continued in the millfeed market during the past week, little interest being shown by mixers and jobbers on the falling market. The mills are making more liberal offers and looking for orders. However, the trade is still awaiting a firming of price levels. Formula feed business is good, but not reflected in additional bookings. Quotations Oct. 4: Bran $37.50@38.75, shorts $44.25@45.75.

Memphis: Millfeed suffered a sharp decline during the week as a result of overproduction and poor demand. Bran moved down $3 a ton, while gray shorts and standard middlings dropped $3.50. The trend was regarded lower, with the millfeed demand slow. Quotations Oct. 4: Bran $35.50, gray shorts $41, standard middlings $38.50, burlaps.

Seattle: Millfeed markets remained unchanged in the Seattle area, with quotations around $38 ton. Trading continued limited, with most of the production being applied on earlier domestic and export bookings. The demand from California was limited. Quotations Oct. 4: Millrun $38, standard middlings $43.

Portland: Fairly steady markets prevailed with millrun quoted at $36.50@37 and middlings at $43 ton.

Ogden: Millfeed prices declined $1 during the past week, with supply exceeding demand. Mills are operating to capacity, 24 hours a day, five days a week, and are booked nearly through October. Quotations Oct. 5 (down $1): Red bran and millrun $35, midds. $40. To Denver: Red bran and millrun $42, midds. $47. To California: Red bran and millrun $42.50, midds. $47.50 f.o.b. San Francisco and Los Angeles.

Winnipeg: The lull in demand for millfeed continues and sales are light. Supplies show a minor increase and prices are soft. Declines for the past week range from $1 to $2. Quotations Oct. 5: Bran f.o.b. mills $32@35 in the three prairie provinces, shorts $36@38, midds. $41@42. All prices cash carlots. Small lots ex-country elevators and warehouses $5 extra.

Rye

Minneapolis: Rye prices, including flour, went unchanged the past week. There have been no appreciable sales for several weeks. Considering the fact that users of rye flour booked to the limit—or close to it—a couple of months ago, supplies of new crop are probably still ample to carry for some weeks ahead. Quotations Oct. 4: Pure White No. 1 $5@5.07, medium $4.80@4.87, dark $4.25@4.32.

Chicago: Virtually no rye sales were consummated in the central states last week. However, shipping orders are coming in at a good rate, and backlogs are diminishing. Quotations Oct. 4: White patent $5.29@5.30, medium $5.09@5.10, dark $4.54@4.55.

Buffalo: Rye prices held unchanged last week. There was no particular interest in the market. Quotations Oct. 4: White $5.79@5.94, medium $5.59@5.74, dark $5.04@5.19.

Pittsburgh: Rye flour prices were lower. No large buying developed. Moderate sales over tri-state areas continued. Directions are fairly good. Quotations Oct. 4, f.o.b. Pittsburgh points: Pure White No. 1 $5.69@5.79, medium $5.41@5.59, dark $4.94@5.09, blended $6.18@6.28; rye meal $4.96@5.29.

Philadelphia: A lagging demand for dark flour kept the local market in

low gear last week as buying caution appeared to have been heightened by a slight increase in mill postings. Hand-to-mouth orders accounted for the only activity reported. The Oct. 4 quotation on rye white of $5.80@5.90 was 5¢ sack above that of the previous week.

Portland: Quotations Oct. 4: White patent $7.10, pure dark rye $6.10.

Oatmeal

Winnipeg: Trade in rolled oats and oatmeal is moderate although a slightly improved interest is in evidence. This is usual with the approach of cold weather at this season of the year. Stocks are light and prices steady. Quotations Oct. 5: Rolled oats in 80-lb. sacks $5.45@5.65; oatmeal in 100-lb. sacks $6.65@6.90 in the three prairie provinces. All prices cash carlots.

ATHERTON BEAN

(Continued from page 7)

college engineers against the competition of aero-dynamics, diesel motors, or plastics.

But if we were so fossilized, we would not be here. That picture is out of date. There is a new spirit stirring and a new attitude of mind growing in this ancient industry of ours, thank heavens. Our presence here is testimony to the fact that we have discovered what mankind around the world knows—that concentrated attack on clearly defined problems can solve them or, if it can't solve them, it can teach the way of easing that last 10% of trouble that makes a mean situation intolerable.

Why We Are Here

I would like to suggest further that your presence at this particular kind of meeting is a confession that you feel as I do, that there are areas of quite unnecessary and unfortunate ignorance in cereal chemistry, that if we are going to handle the inevitable problems of the future well, we must have more fundamental knowledge of the real molecular structures and the real physico chemical nature of the products we process and produce and their significance in determining baking characteristics. Far too often the cereal chemist answers the really probing question with "We just don't know." Why—really why—in terms of molecular structure and intra-molecular forces is there a difference in baking quality between two samples of the same protein content from different areas of the hard winter wheat belt? What is the real reason for difference between hard winter and spring wheat flour of the same protein content? Is the difference the result of protein structure or starch structure? Or is it in some as yet unmeasured balance between the protein and the starch? If these structures or these balances were known, could they be modified to meet more satisfactorily the demands of some or many bakery situations? If they can be modified to meet those demands, can they be modified to make totally different foods or be used for other industrial purposes? How should we test for these structures, these balances, to find the good, the bad, the modifiable, the unmodifiable? What effect do these have on milling quality? What effect do current milling methods have on them? We cannot answer these questions today. We should be able to. Other industries get answers to questions like that, and there are techniques of great penetrative power that make it almost certain that given sufficient effort we can answer them.

These problems are so big and their solutions will take so much manpower and so much capital, the risks of failure are so great, that few companies will venture a really wide-scale attack on them. This is the ideal situation for collaboration. Every one of us will gain from new and disseminated knowledge. Every one will be stimulated by the search for it.

But where does Uncle Sam come in on this? Why the Peoria laboratory? Perhaps you have heard Uncle Sam has a wheat surplus problem. He has been struggling for years to find use rather than restriction solutions to the vast productivity of our wheat lands. And he has not gotten much of anywhere. The information long known has been processed and re-processed, sifted and re-sifted until we can be reasonably sure that its possibilities have been exhausted, that new prospecting needs to be done and new veins of knowledge opened. Where can the government turn better for advice on organization of research, establishment of goals, criticism and judgment of results than to this industry which knows, if none too well at least better than any one else, the structure and processing of the wheat kernel, the economics of wheat growing and food distribution.

Sound Basis

So we have, it seems to me, a basis for a long and fruitful association; namely big problems and mutual interest. Of course successful collaboration requires more than mutual trouble. The milling industry must have confidence in the practicality of the goals established and the competence and energy of the people working toward them. Every unit of the industry must have access to the information developed. The government, in turn, can properly ask that it be given free access to the time and the judgments and to a very large extent the special knowledge of the individual companies. It would be a very wonderful thing if every company would throw into this search for new knowledge literally every bit of information that it had that did not have direct and current competitive bearing. I suspect that few would lose anything of consequence from such liberality, whereas the cumulative effect of the piling up of many bits of knowledge would be quite substantial.

I trust that this second wheat conference will be followed by others and if it is, it will be evidence of an intellectual vigor in our industry which cannot fail to be stimulating and valuable to all.

NEW CROP BASIS

WASHINGTON — The Commodity Credit Corp. has issued its monthly list of government-owned commodities available for sale during October. The main change in the lists this month is a shift to a new-crop (1957) basis of minimum pricing for domestic sales of corn. The minimum prices are based on loan rates. Nonstorable corn also is available from commodity offices.

Stock Market

THE NEW YORK STOCK EXCHANGE

Quotations on baking, milling and allied stocks listed on the New York Stock Exchange:

	1957 High	1957 Low	Sept. 27, 1957 Close	Oct. 4, 1957 Close
Allied Mills, Inc.	30⅝	27½	....	28⅛
Allis-Chalmers	36½	28⅛	....	28⅛
Am. Bakeries Co.	37½	31¾	35⅝	34⅝
Am. Cyanimid	48½	39½	....	40½
A-D-M Co.	39⅝	32¼	....	33¼
Cont. Baking Co.	33¾	27⅞	28⅝	28
Corn Pr. Ref. Co.	32⅝	28	30¼	30
Cream of Wheat	30	27⅝	....	28½
Dow Chemical	68¼	52½	53¾	53⅝
Gen. Baking Co.	11	9	10	10
Pfd. $8	135	127½	128	128
Gen. Foods Corp.	49⅝	40	....	48⅛
Gen. Mills, Inc.	69	57⅞	58½	58
Pfd. 5%	115	100	106¾	106
Merck & Co.	42¼	29⅝	37⅞	37
Natl. Biscuit Co.	40⅝	35	39	39
Pfd. $7	163½	142½	....	148½
Pfizer, Chas.	65½	42⅝	54	54
Pillsbury Mills, Inc.	44¼	39¼	42	42
Procter & Gamble	51½	44⅝	49⅞	49
Quaker Oats Co.	39½	33⅛	37⅞	37
St. Regis Paper Co.	48¼	27	....	27⅛
Std. Brands, Inc.	42⅞	37⅝	40¼	40
Sterling Drug	35¼	25⅛	30⅝	30
Un. Bisc. of Am.	29⅝	26	28	28
Victor Ch. Works	57⅝	41½	....	56⅝
Ward Baking Co.	16⅝	12⅝	13	13

Stocks not traded:

	Bid	Asked
Allis-Chalmers, $3.25 Pfd.	95	100
Cont. Baking Co., $5.50 Pfd.	94	94¾
Merck & Co., $3.50 Pfd.	75	78
Pfizer, Chas., Pfd.	88¾	95
Pillsbury Mills, Inc., $4 Pfd.	90	91¼
Quaker Oats, $6 Pfd.	128	130
St. Regis Paper, $4.40 Pfd.	86	87
Sunshine Bisc., Inc.	72	73
Un. Bisc. of Am., $4.50 Pfd.	88	92
Victor Ch. Works, $3.50 Pfd.	74	77
Ward Baking Co., $5.50 Pfd.	85	86½

THE AMERICAN STOCK EXCHANGE

Quotations on baking, milling and allied stocks listed on the American Stock Exchange:

	1957 High	1957 Low	Sept. 27, 1957 Close	Oct. 4, 1957 Close
Gr. A&P Tea Co.	202	149½	196	196
Horn & Hardart Corp. of N. Y.	30	23¼	28	28
Pfd. $8	122	107	....	118½

Stocks not traded:

	Bid	Asked
Burry Biscuit Corp.	4½	4⅝
Hathaway Bak., Inc., "A"	2⅝	2¾
Horn & Hardart Corp. of N. Y., $5 Pfd.	97	99½
Omar, Inc.	8¾	9
Wagner Baking Co.	3	3⅞
Wagner Baking Co., Pfd.	54	60

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Wolcott & Lincoln Elevator, Wellington, Kansas
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FRED M. ATKINSON

(Continued from page 19)

mill capacity built since the last war than any other large section of the world. The majority of the plants are very modern and make use of the latest machinery. However, I would like to point out here that large scale flour milling in the area is relatively new and the demand for flour relatively great. Contrary to some other sections in the world, the emphasis on the optimum in milling performance, as far as ash and color are concerned, is not as great. Capacity and the high cost of fuel are relatively important. Washing of wheat is the usual practice, although I am not in a position to estimate percentages in this respect. Also, to the best of my knowledge, flour requirements are considerably different than they are in the U.S., for instance. They have a coarser flour which, however, makes excellent baked goods.

Some countries, like Brazil and Peru, import the bulk of their wheat. Others, like Argentina, use mostly domestic. However, in most cases the majority of the grist is of a medium hard nature and is conditioned in a single system for any one plant. With few exceptions, cold conditioning is the rule, with 2 or 3% being added during the washing process and facilities being available for adding a final damping of perhaps ½%. Here again, when exceptionally dry wheat is used, the water is added in several stages, and efforts are made to see that the water is evenly distributed before it enters the bins.

Once again, we find that at least 24 hours is desired for conditioning. In some cases more time is desired, if space is available.

Temperatures of the wheat to the mill again are desired between 70 and 80° F. Moistures for milling are very similar to those used in the U.S. or Canada.

Once again, it is emphasized that if the South American wheat supply was different, undoubtedly their practices would change considerably. In most areas, at any rate, chemical additives are permissible, so there is no urgent reason for hot conditioning to alter the character of the glutens.

As a matter of interest, I would like to include one short quotation from a South American miller:

"Each time I contact young milling technicians from Europe they are horrified to find that our conditioning system is so primitive, but I note that once they have been in the country a couple of years or so, they come around to our way of thinking, at any rate, as far as it applies to the conditions under which we have to work."

While I have very little information directly from millers, one African miller reported that washers and hot conditioners are considered standard equipment in the better mills, largely due to the varieties of wheat which are imported from many parts of the world, although they do have some of their own.

Continental Europe

Obviously, it is impractical to try and describe conditioning practices in every area or country. However, before closing I would like to add a bit about conditioning practices in continental Europe. Probably more work has been done on wheat conditioning in this area than in any other part of the world, and amongst the various countries a great deal of variety is to be found. Without going into too much detail I will try to describe a reasonably typical case and present a few of their ideas. Normally, their wheat situation is quite similar to that of Great Britain. Their grist is approximately ⅓ domestic, or low protein and high moisture, so dryers are often used. Also, they import their harder wheats from Canada or the U.S., as well as some of their semi-hard wheats from Argentina. As in England, these wheats are washed and conditioned separately, being blended a few hours, or just prior to milling. Hot air conditioners or radiator conditioning is the general rule. Here, more than any area with which I am acquainted, more emphasis is put upon cold conditioning, for as long a period as possible prior to washing and hot conditioning. In one plant that I visited the harder wheats were cold conditioned at 15½% moisture for 48 hours. The hot conditioning covered a period of 1 to 2 hours and then the wheat, after being cooled, was held for another 24 hours prior to milling.

A good deal of emphasis is put upon the supposedly beneficial effects of moisture and heat in the conditioner. A modification of their gluten in the softer wheats is one of their primary objects, particularly since in many areas chemical treatment or bleaching is not permitted. To achieve their purposes, the softer wheats are treated to higher temperatures than the hard varieties. It is their aim, too, to have all their wheats arrive in the mill with approximately the same degree of hardness. Some of their systems are quite elaborate, and many of the European millers seem to feel that their extraction is appreciably increased by the use of such elaborate systems. Also, several claim that an increase in flour absorption is obtained by the use of their system. However, this may again have something to do with the fact that chemical additives are normally not permitted. In most instances on the continent, color is not nearly as important a factor as is the case in most other parts of the world. Emphasis is laid upon cold milling and gradual reduction, which most of them feel lends itself to enhanced flavor and better baking quality.

A great many of the European mills have continuous tempering systems where wheat is kept on the move in the bins and in the conditioners, saying that this gives the wheat a better chance to expand and become more mellow, so that it reduces into flour more easily.

In one plant which had a very good and elaborate system for conditioning, I jotted down a few temperatures which I think are fairly typical of European plants. The harder wheats going into this system were cold conditioned at 18% moisture and 20 hours before going to the washer and conditioner. The soft wheats, being 16% moisture in the first place, were sent directly to the conditioner. In this case all the wheats were held separately, but on the move for 10 hours following conditioning. As they put it, "for further mellowing and swelling and evening of moisture location."

Typical Temperatures

	Manitoba deg. F.	Hard wheat deg. F.	Soft wheat deg. F.
Wheat at outlet of conditioner	72	68	72
Hottest wheat in conditioner	100	104	108
Hot air for conditioner	136	142	167

In passing, it might be interesting to note that European practices usually call for a more granular flour than we are accustomed to in the U.S. or England. This, of course, has some advantages, particularly when you consider the type of baked goods which they seem to prefer.

The above remarks are based on knowledge I have gained from millers primarily in Germany, Switzerland and Italy.

Particularly in Germany, a good deal of experimentation has gone on on different methods of conditioning, including vacuum conditioning, which supposedly permits a reduction in conditioning or tempering time. However, even after seeing one of the systems in operation, it was impossible for me to draw any conclusions as to its relative merits. At any rate, the European miller seems to feel more strongly than millers in other parts of the world that thorough, long conditioning at high moistures is very beneficial to flour quality and enhances the millability of the various wheats. Also, they are much closer to the English practice in seeing that plenty of machinery is available for the milling process. This, of course, is in contrast to American or Canadian mills where more emphasis is put upon high capacity.

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PRECISION-MILLED FLOURS

Statement of the ownership, management, circulation, etc., required by the Act of Congress of Aug. 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946, of The Northwestern Miller, published weekly at Minneapolis, Minnesota, for Oct. 1, 1957. State of Minnesota, County of Hennepin, ss. Before me, a notary public in and for the State and County aforesaid, personally appeared Thomas A. Griffin, who, having been duly sworn according to law, deposes and says that he is the Business Manager of The Northwestern Miller and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily, weekly, semiweekly or triweekly newspaper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of Aug. 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (section 537, Postal Laws and Regulations), printed on the reverse of this form to wit: 1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, The Miller Publishing Co., Minneapolis, Minn. Editor, George E. Swarbreck, Minneapolis, Minn. Business manager, Thomas A. Griffin, Minneapolis, Minn. 2. That the owner is: The Miller Publishing Co., principal stockholders of which are: Anna J. Beatty, Minneapolis, Minn.; Frank W. Cooley, Jr., Minneapolis; Paul L. Dittemore, New York, N. Y.; Henry S. French, Chicago, Ill.; Thos. A. Griffin, Minneapolis; Milton B. Kihlstrum, Minneapolis; W. E. Lingren, Minneapolis; W. G. Martin, Jr., Greenwich, Conn.; C. K. Michener, Minneapolis; Martin E. Newell, Kansas City, Mo.; Emsog & Co., Minneapolis; V. T. O'Dea, St. Paul; H. J. Pattridge, Minneapolis; James G. Pattridge, Minneapolis; Eleanor L. Pillsbury, Minneapolis; Dorothy B. Pratt, Minneapolis; Don E. Rogers, Chicago, Ill.; Mrs. Rebekah S. West, St. Louis, Mo.; Mrs. H. E. Yantis, Minneapolis. 3. That the known bondholders, mortgagees and other security holders owning or holding 1% or more of total amount of bonds, mortgages, or other securities are: None. 4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him. 5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is—3,158. Thomas A. Griffin, Business Manager. Sworn to and subscribed before me this 25th day of September, 1957. J. G. Pattridge, Notary Public, Hennepin County, Minnesota. (My commission expires March 17, 1964.) (Seal.)

—BREAD IS THE STAFF OF LIFE—

William C. Geimer Opens Law Office

MINNEAPOLIS — William C. Geimer has extended his practice of law by opening a suburban office at 6100 Excelsior Blvd., Minneapolis. His father is William J. Geimer, manager, packaging service, Bemis Bro. Bag Co., Minneapolis. Mr. Geimer, Jr., established his own law firm at a downtown Minneapolis location recently and this office is to be retained.

CENTENNIAL

(Continued from page 5)

production during the past two months allows some ground for moderate optimism at present."

The company showed a net profit of 59¢ a share compared to a net loss of 31¢ a share for the previous year. The improvement in earnings does not fully reflect the change for the better in operating results, it was stressed.

Misco Mills Lease

Non-recurring charges against income amounting to $178,457.82 represent plant account abandonment in the amount of $55,401.93 and bad debt write-offs in the amount of $123,055.89. Both of these items were involved with the termination of the Misco Mills lease in March of 1957. Originally leased in 1949, the operation of these properties was profitable for the first few years until conditions in the cattle and turkey raising operations in Montana took a turn for the worse. During recent years operations had been conducted at a loss averaging $125,000 annually. In view of these developments it has been the opinion of the Centennial directors for some years that the lease should be terminated. Non-recurring losses in connection with this termination were anticipated and were about in line with expectations.

Another significant move during the year involved the purchase of the Preston-Shaffer flour mill at Milton-Freewater, Ore., which came under Centennial ownership May 1.

Regarding sales, the report states:

With the acquisition of the Milton-Freewater mill additional flour sales should more than compensate for the loss of feed sales formerly effected by the Misco feed division in Montana. Export flour markets recently have also expanded.

Elevators Sold

Grain elevators operating in Washington at Hartline, Medical Lake, and Almira were sold for $24,914.56 over book value. Payment for these properties was received before statement date. Other elevator properties in the state of Washington, located at Waterville, Brewster, Mansfield, Douglas, and Withrow were sold for $83,160.84 over book value. Payment for these properties was received during July, bringing present working capital to a figure in excess of $5,200,000.

As trucking of grain direct from farms to terminal elevators has become an important competitive factor, it has been company policy to sell some grain elevator properties. Our bean elevator at Quincy, Wash., also was completed and in operation for substantially all of last year, said Mr. Milburn.

CENTENNIAL MILLS, INC., AND SUBSIDIARIES

Comparative Consolidated Balance Sheets

Assets

	Years ended June 30— 1957	1956
CURRENT ASSETS:		
Cash	$ 1,534,879.59	$ 930,934.69
Customers' notes and accounts receivable, less allowance for bad debts for 1957 of $315,064.66 and $388,094.55 for 1956	3,377,808.92	3,579,558.67
Other notes and accounts receivable	23,462.10	187,325.82
Prepaid expenses—insurance, supplies, etc	99,852.80	218,291.65
Inventories—		
Grain for milling purposes, flour and millfeed	1,417,532.36	1,828,476.22
Commercial feeds, ingredients, package foods, etc.	998,239.24	1,397,020.09
Bags, containers and supplies	193,788.61	216,312.38
	2,609,560.21	3,441,808.69
Advances on grain and commodities	336,854.26	260,599.85
	2,946,414.47	3,702,408.54
Total current assets	7,982,417.88	8,618,519.37
Other property and improvements and contracts receivable (non-current)	157,718.46	144,138.26
Property, plant and equipment, at cost:		
Land, buildings, machinery and equipment	7,370,418.07	7,490,905.33
Less allowance for depreciation	3,171,071.04	3,234,970.69
	4,199,347.03	4,255,934.64
Deferred charges	28,044.57	28,506.54
Trademarks, trade names and good-will	1.00	1.00
	$12,367,528.94	$13,047,099.81

Liabilities

	Years ended June 30— 1957	1956
CURRENT LIABILITIES:		
Notes payable—banks and brokers	$ 2,000,000.00	$ 2,885,000.00
Current installments of long-term debt	150,000.00	112,500.00
Accounts payable	529,785.47	333,964.26
Accrued taxes and expenses	133,484.31	143,153.97
Provision for federal and state taxes on income	40,109.71	
Total current liabilities	2,853,379.49	3,474,618.23
Long-term debt:		
3½% installment notes payable to banks, $37,500 quarterly commencing Dec. 1, 1956	225,000.00	337,500.00
4¼% sinking fund notes, due June 1, 1967	1,738,667.22	1,738,667.22
	1,963,667.22	2,076,167.22
Less current installments	150,000.00	112,500.00
	1,813,667.22	1,963,667.22
STOCKHOLDERS' EQUITY:		
Capital stock—		
Authorized—300,000 shares of common stock, par value $20 each		
Outstanding—153,439 shares	3,068,780.00	3,068,780.00
Paid-in surplus	339,894.32	339,894.32
Earned surplus	4,291,807.91	4,200,140.04
	7,700,482.23	7,608,814.36
	$12,367,528.94	$13,047,099.81

Comparative Statement of Consolidated Income

	Years ended June 30— 1957	1956
Net sales—flour, feed, cereals and other products	$25,590,843.40	$25,463,459.11
Profit from operation of grain divisions (after depreciation for 1957 of $56,983.21 and $60,876.16 for 1956)	359,554.92	166,893.39
	25,950,398.32	25,630,352.50
Cost of sales, shipping, selling, administrative and general expenses	25,395,384.49	25,413,242.33
Depreciation	220,863.13	222,632.56
	25,616,247.62	25,635,874.89
Operating profit (loss)	334,150.70	(5,522.39)
OTHER INCOME:		
Interest and discounts earned	90,253.86	88,812.13
Net gain from disposals of fixed assets	35,750.94	13,296.33
Other	72,145.78	107,483.69
	198,150.58	209,592.15
	532,301.28	204,069.76
OTHER CHARGES:		
Interest on current borrowings	193,907.51	151,014.10
Interest on long-term debt	84,542.83	86,902.73
Loss on fixed assets arising from lease cancellation	55,401.93	
Other	67,781.14	57,139.50
	401,633.41	295,056.33
Income (loss) before taxes on income	130,667.87	(90,986.57)
Federal and state taxes on income (estimated) (refund for 1956)	39,000.00	(43,103.02)
Net income (loss)	$ 91,667.87	($ 47,883.55)

Comparative Statement of Consolidated Earned Surplus

	Years ended June 30— 1957	1956
Balance at beginning of year	$ 4,200,140.04	$ 4,248,023.59
Net income (loss) for year	91,667.87	(47,883.55)
Balance at end of year	$ 4,291,807.91	$ 4,200,140.04

Statement of Paid-In Surplus

Years Ended June 30, 1957, and 1956

Amount at June 30, 1956, and June 30, 1957	$ 339,894.32

Moritz Milburn

Export Grain Loading Increases at Buffalo

BUFFALO—Railroad carloading of export grain came to life again during the past week in Buffalo after a lapse of several months during which the bottom virtually dropped out of demand.

A Buffalo Corn Exchange report disclosed 1,833,026 bu. moved to the Eastern Seaboard, the second week in a row during which shipments exceeded the million-bushel mark.

The barge canal experienced its fourth consecutive week of export activity. Shipments aggregated 189,300 bu.

—BREAD IS THE STAFF OF LIFE—

CANADIAN DURUM PRICES

WINNIPEG—The Canadian Wheat Board has advised the trade that the averages of the domestic and export prices of amber durum wheat for September, 1957, are $1.97⅝ and $2.02 bu., respectively. Both are basis No. 1 C.W. amber durum in store Fort William/Port Arthur.

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Holland Engraving Co.
Kansas City, Missouri

WALTER BERGER

(Continued from page 3)

ing Communist countries would love to trade agricultural problems with us right now."

The basic problem, Mr. Berger said, is the failure to develop programs to take advantage of efficiency in sound ways—to learn how to live with fortunate abundance.

"It is quite clear that our past programs have fallen short," Mr. Berger asserted. "They have been more negative than positive in approach. We have tried to legislate prices artificially, without full consideration for the efficiency and ingenuity of our farmers. In other words, we have not been realistic."

Flexibility Needed

Mr. Berger summed up the requirements by saying: "We must be conscious of the need for more flexibility in pricing, in control measures, and in general program planning and operations. We must fit these programs to the needs of today, and not of some past wartime emergency. In developing better farm programs, we should always keep in mind the fundamental need to avoid necessary restrictions and controls which stifle free enterprise—and ignore controlling economic factors. In brief, that is what we mean when we say we must have more flexibility."

From the observations of Mr. Berger, it may be implied, with a large measure of assurance, that the next major step in the Benson revision of farm programs will be to obtain more flexibility in pricing and control measures. This could mean that acreage allotment control measures will give way to freedom of individual farmer judgment as to crops and the size of individual crops, backed up by a lower level of parity support. This might involve a level of parity support which would perform the function of insurance against loss by the farmer from seriously falling farm prices and a level of support which would not influence the farm decision on crops and their sizes because of an overly-generous level of price support.

Concluding his statement to the corn farmers, Mr. Berger said: "We must replace policies and programs which have failed with measures which will assure the American farmer his rightful place in the abundance of our free economy."

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—BREAD IS THE STAFF OF LIFE—

CHURCHILL SHIPMENTS

WINNIPEG—The number of boats carrying cargoes via Canada's northerly shipping route out of Churchill, Hudson Bay, this year will be almost identical with last year's 48-vessel total representing 16,130,000 bu. grain. According to trade circles the failure to set a new shipping record over those established a year ago is not that the northern port is losing favor with exporters but reflects present lethargy in world export trade in wheat and wheat flour.

POLICY REVISION

(Continued from page 3)

and grant the USDA chief authority to fix supports for those commodities on a discretionary basis, guided by the eight-point provision of the present farm law, which sets forth certain principles for authorization of support, and the probability of disposal of surpluses which might be accumulated at any support level.

Mr. Benson told the advisory committee that he was opposed to any two-price system for wheat and rice and, in principle, for any commodity.

Compensatory Payments

He also told the committee that his agency has been exploring the compensatory payment plan, irrationally called the "Brannan plan" on the grounds that it would cost billions of dollars to finance the operations.

The ultimate cost could only be measured in the levels of support invoked for these commodities. Charles F. Brannan, former Secretary of Agriculture, had urged the compensatory plan based on 90% of parity and had aimed the emphasis of his proposals on the semi-perishable commodities such as dairy products, livestock and swine, but had not foreclosed the use of the compensatory payments for the basic commodities.

At the time Mr. Brannan urged his plan, leaders in the grain trade saw the so-called "Brannan plan" as the means of freeing up the big commodity contract markets for trading, but Mr. Brannan soft-pedalled this concept, although he had stated the compensatory payment plan would be available for those basic crops.

Since taking office, Mr. Benson has adopted the compensatory payment plan for wool but has avoided its use in other commodities.

A Report in the Making

There seems to be little sympathy for the plan now at U.S. Department of Agriculture, but the Secretary stated publicly following the national committee meeting that a report was in the making at USDA to be submitted to Congress shortly.

AOM COMMITTEE

(Continued from page 10)

and that a small change in carbuilding design is advisable.

Paul O. Berg, Ft. Wayne, Ind., feed milling consultant engineer, discussed the lack of basic physical and engineering data of different bulk materials, which are necessary to design and build bulk bins and connecting spouts. The committee pledged its cooperation to provide the requested information.

Members Present

Committee members present for the meeting were Fred Abbott, GMI, Minneapolis; Mr. Ackels; Ralph Bouskill, Purity Flour Mills, Toronto; R. R. Brotherton, Bay State Milling Co., Winona, Minn.; L. E. Collier, National Biscuit Co., Toledo; O. E. S. Dybevick, International Milling Co., Minneapolis; E. J. Gehrig, Quaker Oats Co., Chicago; David Mattson, Atkinson Milling Co., Minneapolis; Dewey Robbins, Fisher Flouring Mills Co., Seattle; Mr. Rowe; Mr. Rozsa; Mr. Wingfield; and T. Chris Mills, Ogilvie Flour Mills, Ltd., Montreal, who was recently appointed a member of the committee.

Also in attendance were Lyle Mertz, GMI, Buffalo, president of AOM, and Donald S. Eber, Kansas City, executive vice president. Guests attending were Dr. F. R. Senti, Dr. M. M. MacMasters and K. Majors of the Northern Utilization Research & Development Division of USDA.

Following the meeting the committee attended the wheat research conference at the division's headquarters at Peoria Oct. 1-2. The conference was sponsored by the Millers National Federation and USDA.

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CONVENTION CALENDAR

Oct. 10-11—National Soft Wheat Millers Assn., Washington Duke Hotel, Durham, N.C.; sec., 1694 Board of Trade Bldg., 141 W. Jackson Blvd., Chicago 4, Ill.

Oct. 12-14 — New Jersey Bakers Board of Trade convention and exhibition, Berkeley-Carteret Hotel, Asbury Park, N.J.; sec., Michael Herzog, Standard Brands, Inc., 43 Claremont Ave., New Brunswick, N.J.

Oct. 13—Indiana Bakers Assn., Severin Hotel, Indianapolis, Ind.; sec., Ferd A. Doll, 2236 E. Michigan St., Indianapolis, Ind.

Oct. 14-17—National Association of Bakery Sanitarians, Hotel Morrison, Chicago; sec., Gerard J. Riley, Room 216, 855 Avenue of the Americas, New York 1, N.Y.

Oct. 17-19—National Bakery Suppliers Assn., Edgewater Beach Hotel, Chicago; sec., John W. Allen, J. W. Allen Co., 110 N. Peoria St., Chicago 7, Ill.

Oct. 18-19—Baking Industry Sanitation Standards Committee, Sherman Hotel, Chicago; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

Oct. 19-23 — American Bakers Assn., Hotel Sherman, Chicago, Ill.; sec., Harold Fiedler, 20 N. Wacker Dr., Chicago 6, Ill.

Oct. 20—Bakery Equipment Manufacturers Assn., Hotel Sherman, Chicago, Ill.; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

Nov. 2 — Seventh annual transborder meeting, District 8, Association of Operative Millers, Sections 6 and 11, American Association of Cereal Chemists, Markeen Hotel, Buffalo, N.Y.

Nov. 11—Connecticut Bakers Assn., Silver Anniversary Convention, Hotel Statler, Hartford; sec., Charles Barr, 584 Campbell Ave., West Haven 16, Conn.

Nov. 11-12—American Corn Millers Federation, LaSalle Hotel, Chicago, Ill.; sec., James W. Robinson, 173 W. Madison Ave., Chicago, Ill.

Nov. 14-16—Self-Rising Flour Institute, Inc., Hotel Peabody, Memphis, Tenn.; sec., Allen R. Cornelius, 322 Nashville Trust Bldg., Nashville 3, Tenn.

Nov. 18-19—New England Bakers Assn., Sheraton Plaza Hotel, Boston, Mass.; exec. sec., Herbert J. Schinkel, 120 Boylston St., Boston 16, Mass.

Nov. 19—Open meeting of the board of directors, Grain Processing Machinery Manufacturers Assn., Hotel Muehlebach, Kansas City, Mo.; exec. sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

Nov. 21-22—District 13, Association of Operative Millers, Royal Alexander Hotel, Winnipeg, Man.; sec., James Winbush, Kipp-Kelly, Ltd., Winnipeg, Man.

Nov. 30—District 2, Association of Operative Millers, Aladdin Hotel, Kansas City, Mo.; sec., George J. Tesarek, Quaker Oats Co., St. Joseph, Mo.

Dec. 1—District 5, Association of Operative Millers, Lennox Hotel, St. Louis; sec., G. Edward Mehleck, 15 N. Jefferson St., Chicago 6, Ill.

1958

Jan. 11-14—Ohio Bakers Assn., annual convention, Deshler-Hilton Hotel, Columbus, Ohio; sec., Clark L. Coffman, Seneca Hotel, Columbus, Ohio.

Jan. 19-21—Indiana Grain & Feed Dealers Assn., Hotel Claypool, Indianapolis, Ind., sec. Fred K. Sale, Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 19-21 — Pennsylvania Bakers Assn., annual winter convention, Bellevue-Stratford Hotel, Philadelphia; sec., Theo. Staab, 600 N. Third St., Harrisburg, Pa.

Jan. 23-24—National Soft Wheat Millers Assn., Brown Hotel, Louisville, Ky., sec., 1367 Board of Trade Bldg., Chicago 4, Ill.

Jan. 26-28—Potomac States Bakers Assn., annual convention, Lord Baltimore Hotel, Baltimore, Md.; sec. Edwin C. Muhly, 1126 Mathieson Bldg., Baltimore 2, Md.

Feb. 1—District 4, Association of Operative Millers, Nicollet Hotel, Minneapolis, Minn.; sec., W. A. Howie, J. K. Howie, Metropolitan Bldg., 123 S. Third St., Minneapolis 1, Minn.

Feb. 9-11—Tri-State Bakers Assn., annual convention, Monteleone Hotel, New Orleans, La.; sec. Sidney Baudier, Jr., 624 Gravier St., New Orleans, La.

Feb. 14-16—Bakers Association of the Carolinas, stag outing, Pinehurst, N.C.; sec., Louise Skillman, 2608 Portland Ave., Charlotte 7, N.C.

Feb. 23-25—Colorado Grain, Milling and Feed Dealers Assn., Shirley-Savoy, Denver, Colo.; exec. sec., R. B. Kelley, 714 Cooper Bldg., Denver 2, Colo.

March 3-6—American Society of Bakery Engineers, Edgewater Beach Hotel, Chicago, Ill.; sec., Victor E. Marx, Room 1354, LaSalle-Wacker Bldg., 121 W. Wacker Dr., Chicago 1, Ill.

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When a sit-down strike was called among the employees of a small Detroit machine shop, the company president decided to settle it quickly.

"Boys, you might as well be comfortable," he told the strikers; and sent for blankets and three cases of brandy.

When the brandy was almost consumed, he sent in 20 young ladies to amuse the strikers. At the height of festivities, he brought in the strikers' wives to view the proceedings.

The strike was called off immediately.

◆ ◆ ◆

After years of living in a house trailer, a woman was fed up with the lack of space.

"Look at that," she said enviously, as she and her husband drove past a sprawling ranch-type house. "Wouldn't you love to have a house that big? I bet it's at least four lanes wide!"

◆ ◆ ◆

"It says here that a man throttled his wife," said a woman, looking up from her paper.

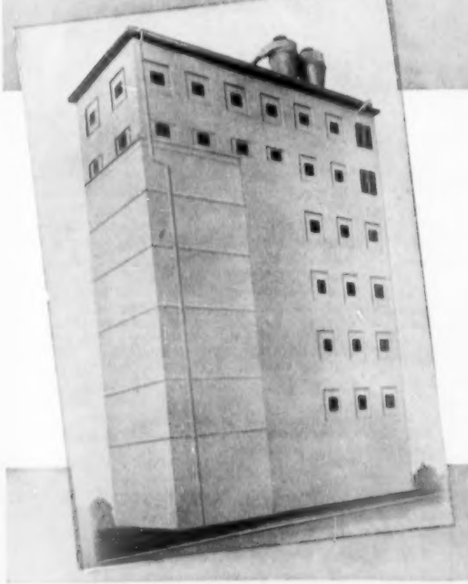
Her husband replied, "Sounds like a practical choker."

◆ ◆ ◆

When Magnolia, the cook, asked for an advance on her week's salary, the housewife wanted to know the reason. "Our preacher is leaving the church this Sunday," Magnolia explained, "and the congregation wants to give him a little momentum."

◆ ◆ ◆

The harassed-looking housewife approached the operator of a mobile X-ray unit. "I don't need a chest X-ray," she said timidly, "but the label has come off this tin can. Could you tell me if it's spaghetti or baked beans?"



TODAY'S MODERN BULK FLOUR MILL

WEBER'S BULK FLOUR PLANT, pictured at the left, is an integral part of today's modern flour mill. The process of converting the milling industry from sacks to bulk requires modern bulk flour storage and handling facilities to replace the old sacked storage warehouse.

THE WEBER FLOUR MILLS CO.
SALINA, KANSAS

▲ Atkinson Milling Co. of Minneapolis, Minn., where Wallace & Tiernan flour service and equipment is used. This mill processes up to 6000 cwt. of flour daily.

▲ Mill employee adjusts flow of chlorine dioxide gas being fed from a W&T DYOX unit to a flour stream. The gas flow to each flour stream can be individually regulated.

▲ W&T BETA-CHLORA unit installed at the Atkinson Mill. This unit meters gas used in the conditioning of certain grades of flour.

▲ Mill employee loads W&T NOVADEL FEEDERS used to precisely measure and feed NOVADELOX, the superior Wallace & Tiernan bleaching compound

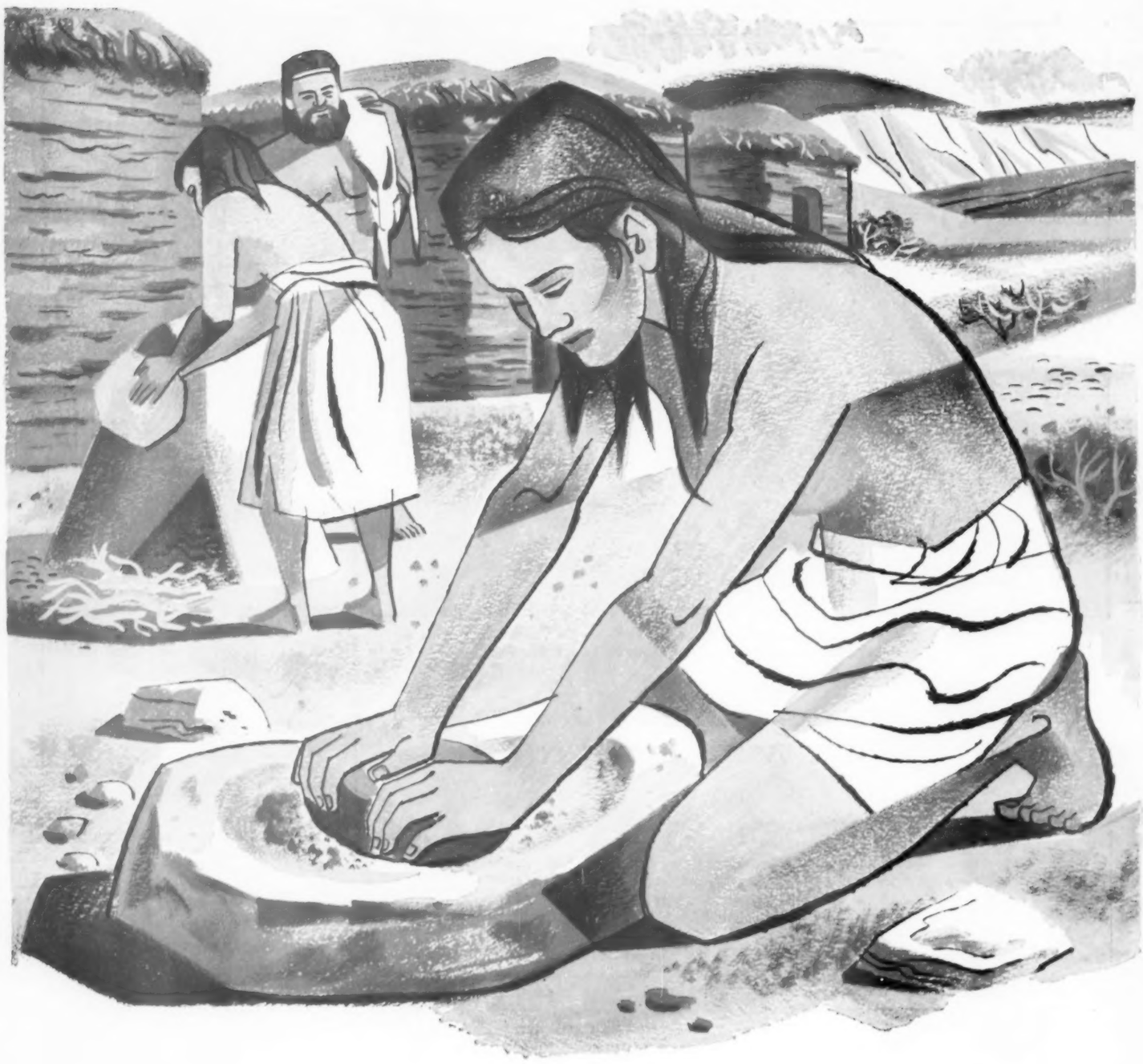
HOW ATKINSON MILLING COMPANY USES W&T FLOUR TREATMENT

The best grade of flour requires maturing, bleaching, and enriching with precise, uniform treatment methods such as those practiced at the Atkinson Milling Co. This mill regularly processes up to 6000 cwt. of flour daily. To insure that the flour is uniformly aged, properly enriched, and of the best color, this progressive mill uses Wallace & Tiernan flour treatment equipment and services.

Wallace & Tiernan flour treatment in use at the Atkinson Mill includes: Dyox® for maturing; a Beta-Chlora® unit for conditioning; Novadelox® for bleaching; and N-Richment-A® for enrichment. All equipment furnished has been proven efficient and dependable in operation and is periodically checked and maintained by Wallace & Tiernan so that costly shut-downs are avoided. In addition, the Atkinson Milling Co. has available, at all times, skilled and experienced technical assistance from Wallace & Tiernan to aid them in the solution of their flour processing problems.

The Atkinson Milling Co. is only one of the many flour milling companies using W&T Flour Treatment. If your mill is not one of these, investigate the advantages of Wallace & Tiernan's complete flour service.

NOVADEL FLOUR SERVICE DIVISION
WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
REPRESENTATIVES IN PRINCIPAL CITIES



Automation comes to Chaldea! (8,000 B.C.)

Flour was about 20,000 years old when Chaldea was a brand-new empire. But the new nation discovered a better way than ever before to mill flour! Chaldea's invention was the saddlestone. Grinding grain with the new device was far easier than pounding it as millers had done for twenty millenniums before.

The saddlestone was just another of the thousands of forward steps in the milling and baking industries since man first began to be civilized.

General Mills believes that constant search for improvement is the reason bread is as important in today's diets as it was 30,000 years ago.

Good eating will always begin with Bread

General Mills